The 1983 Roe Herring Charter Vessel Monitoring and Sampling Program

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October, 1985

Canadian Industry Report of Fisheries and Aquatic Sciences No. 164

86-0059/

Canadian Industry Report of Fisheries and Aquatic Sciences

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Canadian Industry Report of

Fisheries and Aquatic Sciences 164

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BY

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Cat. No. Fs 97-14/164 ISSN 0704-3694

Correct citation for this publication:

Armstrong, R.W. 1985. The 1983 roe herring charter vessel monitoring and sampling program. Can. Ind. Rep. Fish. Aquat. Sci. 164: 88 p.

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ABSTRACT

Armstrong, R.W., 1985. The 1983 roe herring charter vessel monitoring and sampling program. Can. Ind. Rep. Fish. Aquat. Sci. 164: 88 p.

Twelve charter vessels made 343 sample sets on the British Columbia coast in order for fishery managers to assess the stock abundance, recruitment and state of sexual maturity of the Pacific herring (Clupea harengus pallasi). These data were used to determine the location, timing and estimated duration of the 1983 commercial roe herring fishery openings.

In addition, laboratory samples were retained after each sample set for Fisheries Research Branch scientists as part of the data base for the computer modelling system used to estimate the escapement and predict the available surplus for the 1983/1984 Pacific herring fishery. Field data, including hydroacoustic stock estimates and onboard field analysis data, are contained in this report.

Key words: Pacific herring (Clupea harengus pallasi), charter vessels, stock abundance, sexual maturity, roe yield, standard length.

RÉSUMÉ

Armstrong, R.W., 1985. The 1983 roe herring charter vessel monitoring and sampling program. Can. Ind. Rep. Fish. Aquat. Sci. 164: 88 p.

Douze bateaux affrétés ont recueilli 343 séries d'échantillons sur la côte de la Colombie-Britannique pour permettre aux gestionnaires des pêches d'évaluer l'importance des stocks, le recrutement et la maturité sexuelle du hareng du Pacifique (Clupea harengus pallasi). Ces données ont servi à déterminer l'emplacement, la date et la durée approximative des périodes d'ouverture de la pêche commerciale du hareng plein en 1983.

En outre, aprés le prélèvement de chaque série d'échantillons, on a conservé, à l'intention des scientifiques de la Direction de la recherche sur les pêches, des échantillons pour analyse en laboratoire qui feront partie de la base de données pour le système de modélisation informatisé utilisé pour évaluer le nombre de rescapés et prédire les surplus disponibles pour la pêche du hareng du Pacifique en 1983-1984. Le présent rapport renferme des données recueillies sur le terrain, notamment une estimation hydroacoustique des stocks, et des données d'analyses faites à bord.

Mots-clés: hareng du Pacifique (Clupea harengus pallasi), bateaux affrétés, importance des stocks, maturité sexuelle, production d'oeufs, longueur standard.

INTRODUCTION

During the 1982/83 herring season, 12 herring seiners were chartered for the 1983 roe herring test fishing operation and two seiners were chartered in September 1982 for survey work.

The roe herring charter objectives were as follows:

1. In-season management

   a) to estimate the overall herring biomass in each fishing location and to identify a fishable stock to meet the Fixed Quota requirement,

   b) to determine roe yields,

   c) to determine if the available herring size (length and weight) was suitable for a herring fishery,

   d) to determine roe quality, ie. incidence of abnormal roe,

   e) to measure incoming year class strength and compare it with predicted returns,

   f) to ensure "on the grounds" input from Industry via the charter vessel masters and

   g) to use the charter program as a training platform for the Department of Fisheries and Oceans (DFO) field staff.

2. Research

   a) to obtain biological samples for the Fisheries Research Branch (FRB) from as many herring spawning stocks as possible. The resulting information along with samples from commercial fisheries is used to forecast the stock strength and potential catch for the following year.

In order to fulfill the above objectives, it is mandatory that the fishing master be an experienced and successful herring fisherman who is ready and able to pass on his experience to the DFO staff, and who is respected by fishermen participating in the commercial fishery.

This report contains the results of the 1983 roe herring charter program. The 1982 fall survey is also mentioned briefly because roe herring were used as payment in the fall charter program. The fall program provided information on catches and fish observations from a herring cruise conducted in northern B.C. during September 16 to 29, 1982. The objective of this survey were:

   a) to determine the age composition of stocks, particularly the occurrence of age 3 and 4 fish as possible recruits and

b) to determine the proportion of each age group which is actively maturing and may be spawning in 1983.

The Snow Cloud (Capt. D. Dawson) and Snow Queen (Capt. H. Hardy) were chartered to sample herring populations in both offshore and inshore areas in the North Coast (Areas 1 - 10). Offshore areas surveyed were the Horseshoe Grounds, and northern end of the Queen Charlotte Islands and the Browning Entrance area. Inshore areas surveyed were the major bays and inlets of the Central Coast (ie. Queen Sound, Milbanke Sound, Laredo Channel) and Prince Rupert area (ie. Pearse Canal, Wales Channel, Chatham Sound). Further information on the 1982 fall charter will be provided in a later report by D. Hay, P.E. Sprout and B. McCarter (MS in prep'n).

HISTORICAL REVIEW OF THE ROE HERRING CHARTER PROGRAM

Successful management of roe herring fisheries depends on the manager getting timely and accurate information on stock movement, abundance and sexual maturity.

Before 1980, seine vessels were only chartered for the period preceeding fishery openings and could participate in the commercial fishery. This meant that just when the fishery managers most urgently needed the information on roe yields and abundance, they lost one of their key sources of data. This may have resulted in lost fishing opportunities and lost revenue to the Industry.

These vessels were not chartered for the entire fishing season because the cost of buying an experienced and successful fisherman out of the roe herring fishery was prohibitive, expecially during the late 1970 boom years. An estimated cost of chartering 12 seine vessels was in excess of $1,000,000. The dramatic increase in value of roe herring, combined with the Industry requirement of a minimum roe yield of 10%, increased the need for more timely and accurate information on stock movement, abundance and sexual maturity.

During the "Bonanza Year" of 1979, million dollar seine sets were made and cash buyers were paying up to $5,000/ton on the fishing grounds. This activity resulted in additional pressure on the resource and on fishery managers, thus further confirming that test vessels were required throughout the roe fishery season.

The present chartering system is the result of consultation with fisheries staff and representatives from the Industry. It was decided that Industry would get involved in providing in-season management information through the charter vessel masters. Seiners with experienced skippers would be chartered to conduct test fishing throughout the fishing season under authority of Section 4 of the Fisheries Act and Section 3 of the Fisheries Development Act. The charter seiners would carry out the test fishing operation and would be given permission to catch a specified quantity of roe herring in tons/day for the 26-day duration of the charter. As part of the Charter Agreement, the charter seiner would not participate in the roe herring fishery during the year of the charter.

In this way, the charter program was paid out of the resource, Industry was involved during the fishing season in developing the fisheries through the

charter vessel masters, and a number of seiners were bought out of the open fishery thereby reducing fleet size.

This report summarizes the seine set data, roe yield information and length frequency distribution data collected from the 12 charter seiners. In order to simplify data tabulation, interpretation and comparison with previous years, all tonnage is given in short tons (907.18 kg), the distances are shown in nautical miles (1.85 km) and herring length is given in centimeters. The present report is one of a series of publications by the DFO aimed at providing the annual summary of roe herring charter vessel monitoring and sampling program.

METHODS AND MATERIALS

In 1983, 12 herring seine vessels were chartered for the roe herring fishery on the B.C. coast. The charter vessels were used to assess the herring stocks in each area by echo sounding for biomass estimates and by seining for biological samples to estimate recruitment and roe yield. The normal procedure was to hydroacoustically sound the fishing grounds and then obtain seine samples from a cross-section of the herring schools in each location.

Invitations to tender were mailed to all licenced roe herring seiners, and 12 charter vessels were selected (Table 1). The selection was based on a combination of low bids (tons of roe herring per day) and a point rating system which takes into account the experience of the vessel master and the condition of the vessel and equipment. All vessels were chartered for a minimum of 26 days with provisions made for extensions of up to 5 days, if required. Bids for the successful vessels ranged between 4.0 tons/day and 5.0 tons/day for a total tonnage requirement of 1,489.5.

The actual tonnage caught for payment was 1,555.34 tons and included 14 days extension for charter vessels Christav and Fisher Lassie II. The combined total payment for the 1983 roe herring and 1982 fall charters was 1,678.84 tons. The total catch was 1,885.98 tons giving 207.14 tons excess. This represents an average excess of 14.79 tons per vessel for the 14 vessels chartered. Roe maturities of the herring charter payment ranged between 10.4% and 15.0%.

The 207.14 ton excess was sold at the Union agreed price of $830.00 per ton for a total value of $171,927.03. Of this total, $60,986.75 were paid for herring packing charges and $110,940.28 were forwarded to the Receiver General of Canada. The excess was relatively low because herring could be moved from vessel to vessel. For example, the Snow Queen caught 505.83 tons in one set which were used as payment for three vessels, the Snow Queen, Intrepid I and Pacific Ocean, thus reducing the effect of a large excess catch.

The charter timing was set to ensure that a particular charter vessel was available prior to and during the major spawnings in each area (Table 2). The 12 vessels were assigned to the three herring management areas (Fig. 1) as follows:

Table 1. Roe herring charter payment summary, B.C., 1982 and 1983.

Vessel	Charter bid (tons) Daily rate	Charter (26 days)	Total payment (tons)	Total excess (tons)
		1983 ROE HERRING CHARTER		
Snow Queen	4.50	117.0	117.00	-
Ocean Marauder	5.35	139.1	139.10	-
Christav	4.50	117.0	148.50[a]	-
Fisher Lassie II	4.90	127.4	161.70[a]	-
Intrepid I	5.00	130.0	130.00	-
Westview No. I	4.75	123.5	123.50	-
Pacific Quest	5.00	130.0	130.00	-
Pacific Ocean	4.80	124.8	124.80	-
Argent Fisher	4.00	104.0	104.00	-
Pachena I	4.99	129.7	129.74	-
Ocean Horizon	4.60	119.6	119.60	-
Bernice C	4.90	127.4	127.40	-
Total (roe herring charter)	57.29	1,489.54	1,555.34	
		1982 FALL HERRING CHARTER		
Snow Queen	4.50	63.0	63.00	-
Snow Cloud	4.32	60.5	60.50	-
Total (fall herring charter)	8.82	123.5	123.50	
Combined total (roe herring and fall charters)	66.11	1,613.04	1,678.84	207.14
				Mean = 14.79[b]
				Total Catch = 1,885.98

[a] Includes seven-day extension.
[b] Excess catch per vessel not available since excess fish were distributed among charter vessels.

Table 2. Roe herring charter vessels by location and time period, B.C., 1983.

Vessel	Fishing master	Location (Area)	Charter timing	Charter duration (days)
Snow Queen	H. Hardy	2E	Mar. 6 - 31	26
Ocean Marauder	J. Lenic	2W	Mar. 1 - 26	26
Christav	G. Stava	3 - 5	Mar. 10 - Apr. 4 Apr. 11 - 17	33[a]
Fisher Lassie II	V. Wilson	6 & 7	Mar. 1 - 21 Apr. 10 - 16	33[a]
Intrepid I	T. Mosely	6 - 8	Mar. 6 - 31	26
Westview No. I	M. Aleksich	13 - 17	Feb. 22 - Mar. 19	26
Pacific Quest	J. Polonio	12 - 17	Feb. 22 - Mar. 19	26
Pacific Ocean	A. Sorenson	13 14 & 15	Feb. 14 - 26 Feb. 26 - Mar. 16	26
Argent Fisher	J. Malatestinic	17 & 18	Feb. 22 - Mar. 19	26
Pachena I	S. Bunten	23	Feb. 24 - Mar. 21	26
Ocean Horizon	J. Reid	24	Feb. 24 - Mar. 21	26
Bernice C	W. Cadwallader	23, 25 - 27	Feb. 24 - Mar. 21	26
		Fall Herring Charters 1982		
Snow Queen	H. Hardy	1 - 10	Sep. 16 - 29	14
Snow Cloud	D. Dawson	1 - 10	Sep. 16 - 29	14

[a] The charter duration for the 1983 program was 26 days; however, the vessels Christav and Fisher Lassie II had their charter duration extended each by 7 days.

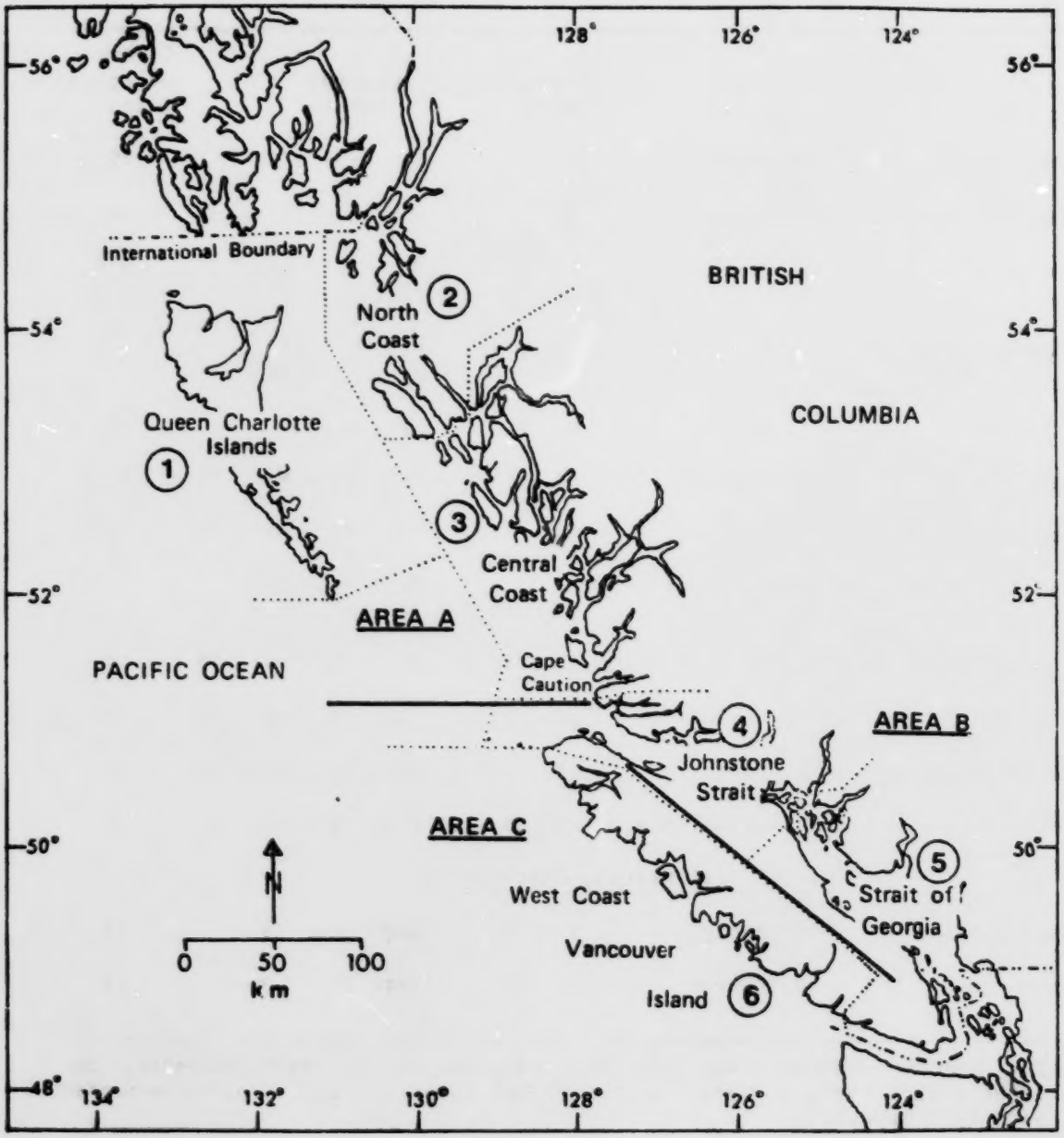


Fig. 1. Herring divisions 1-6 (circled numbers, dotted lines) and 1983 management areas A - C (solid lines).

Area A (North of Cape Caution) - 5 vessels

Area B (Strait of Georgia - Johnstone Strait) - 4 vessels

Area C (West Coast Vancouver Island) - 3 vessels

The charter vessels were assigned to specific sampling locations within each management area and were given general directions by the fishery manager on where samples were required in each district. Each set location was recorded by Statistical Area (Fig. 2) and herring section (Figs. 3 and 4, Table 3). The onboard direction on sampling procedure was given by the DFO fishery officer, technician or biologist assigned to the vessel.

Specific sampling instructions, similar to those used in previous years, were placed onboard each vessel (Appendix Table 1).

Onboard Sampling Procedure

Seine sample sets were made on all large bodies of herring, and samples of about 150 lb (68 kg) were brought aboard from the set using a small meshed dipnet or brailer. A Wheelhouse and Sample Log sheet, which doubles as a length measurement data sheet, was completed after every set (Appendix Figs. 1a & b). Another random sample of approximately 40 lb (18 kg) was taken from the same set for further laboratory analysis at FRB. Samples were also retained for special FRB research studies in selected locations along the coast.

The onboard data sheets and sampling procedures are described below.

1. Onboard data records

i) Daily log

The daily log covers all activities of the charter vessel while assessing the herring stocks. This includes a summary of discussions with the vessel master on fish movement and also behaviour patterns. The daily logs from the previous year are also placed aboard the charter vessel as a reference for past fish behavior and distribution patterns in a particular location.

ii) Wheelhouse and Sample Log

This data sheet is completed after every set, including water hauls, and provides a record of the seine set including biomass estimates and roe yield information (Appendix Figs. 1a and 1b). Information from this data sheet is reported to the District Management Coordinator by radio telephone after each set.

iii) Onboard sampling

a) Herring measurement

Standard length measurements (Appendix Fig. 2) obtained from a random sample of 50 herring are recorded directly on a

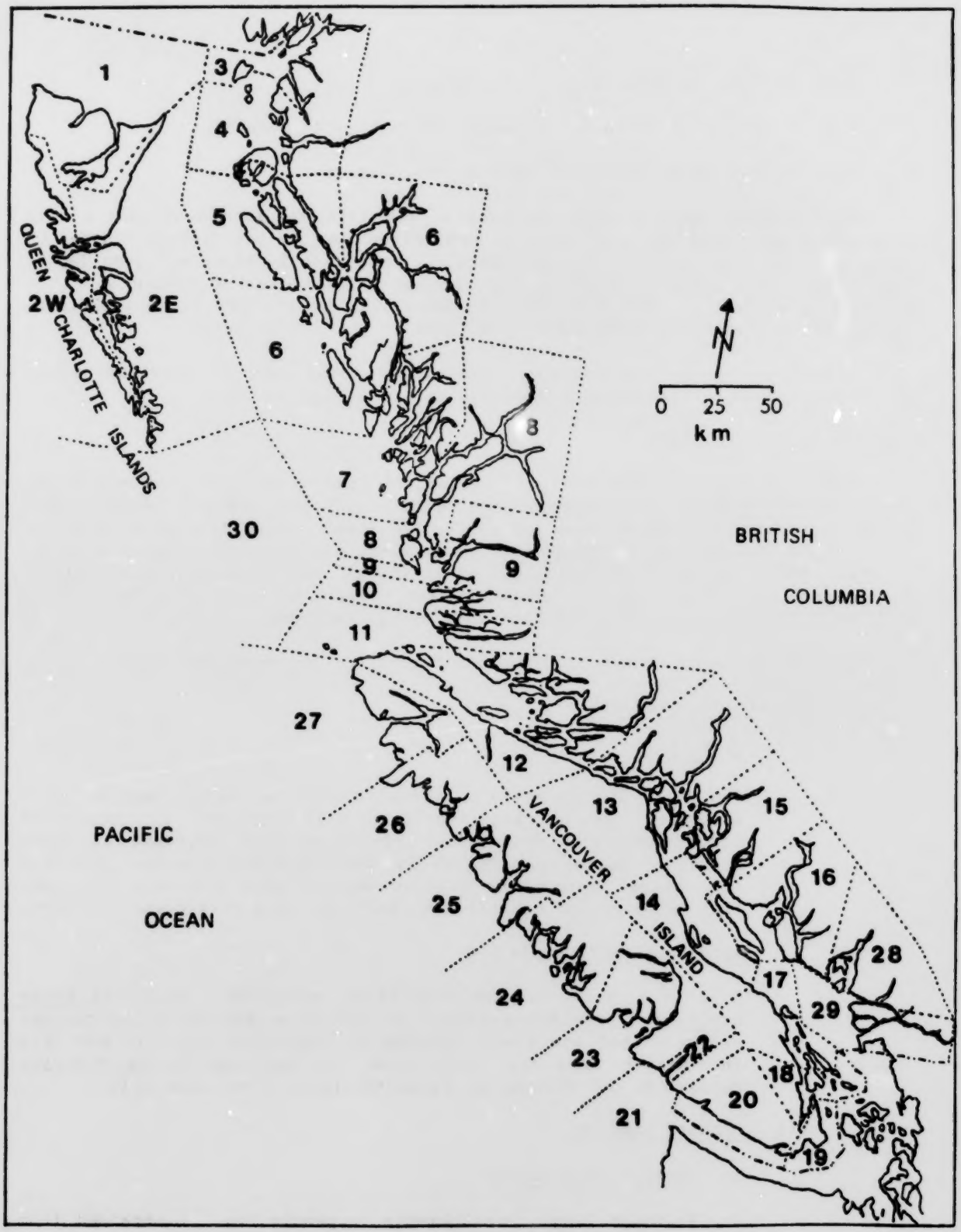


Fig. 2. Statistical Areas in British Columbia.

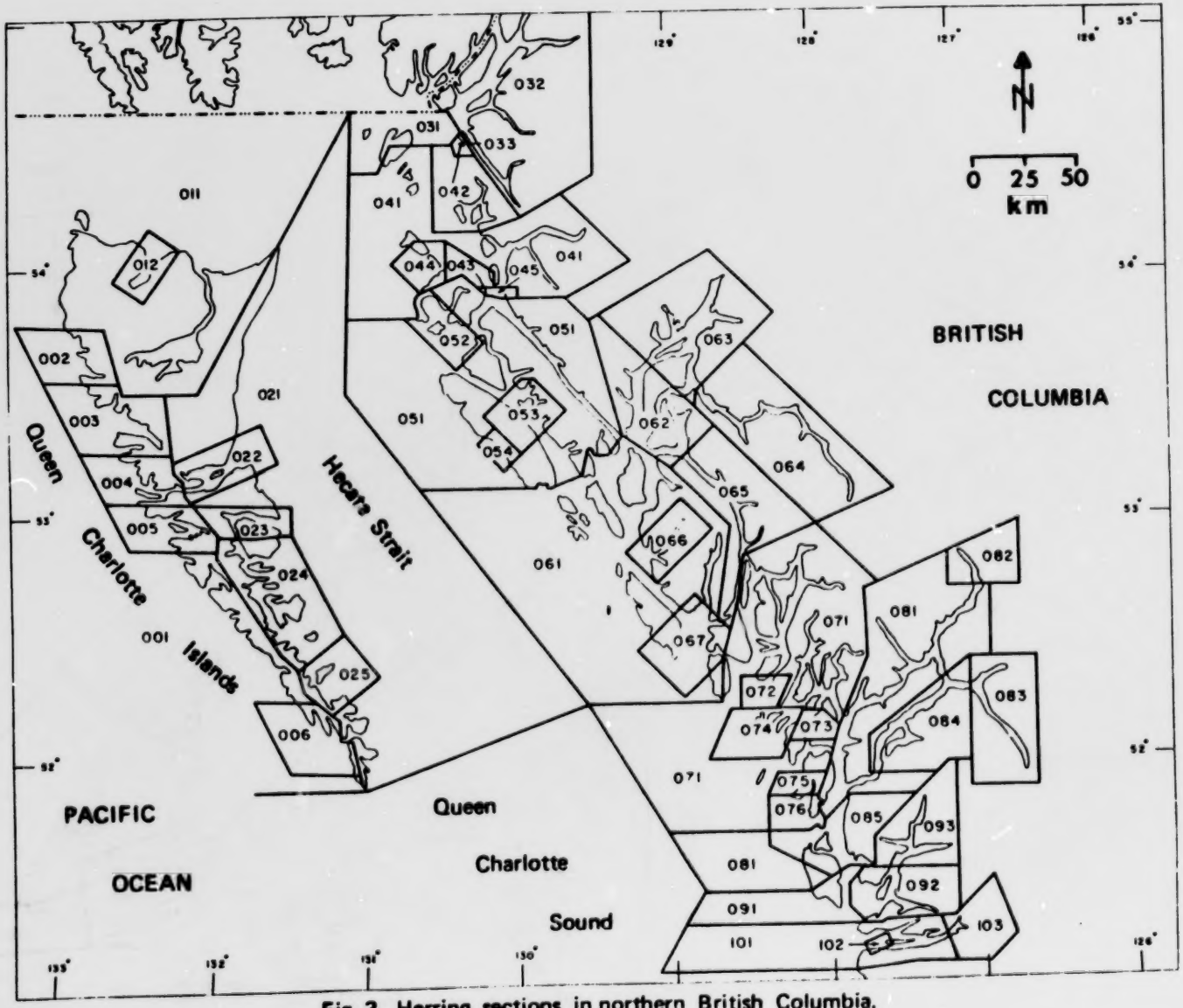


Fig. 3. Herring sections in northern British Columbia.

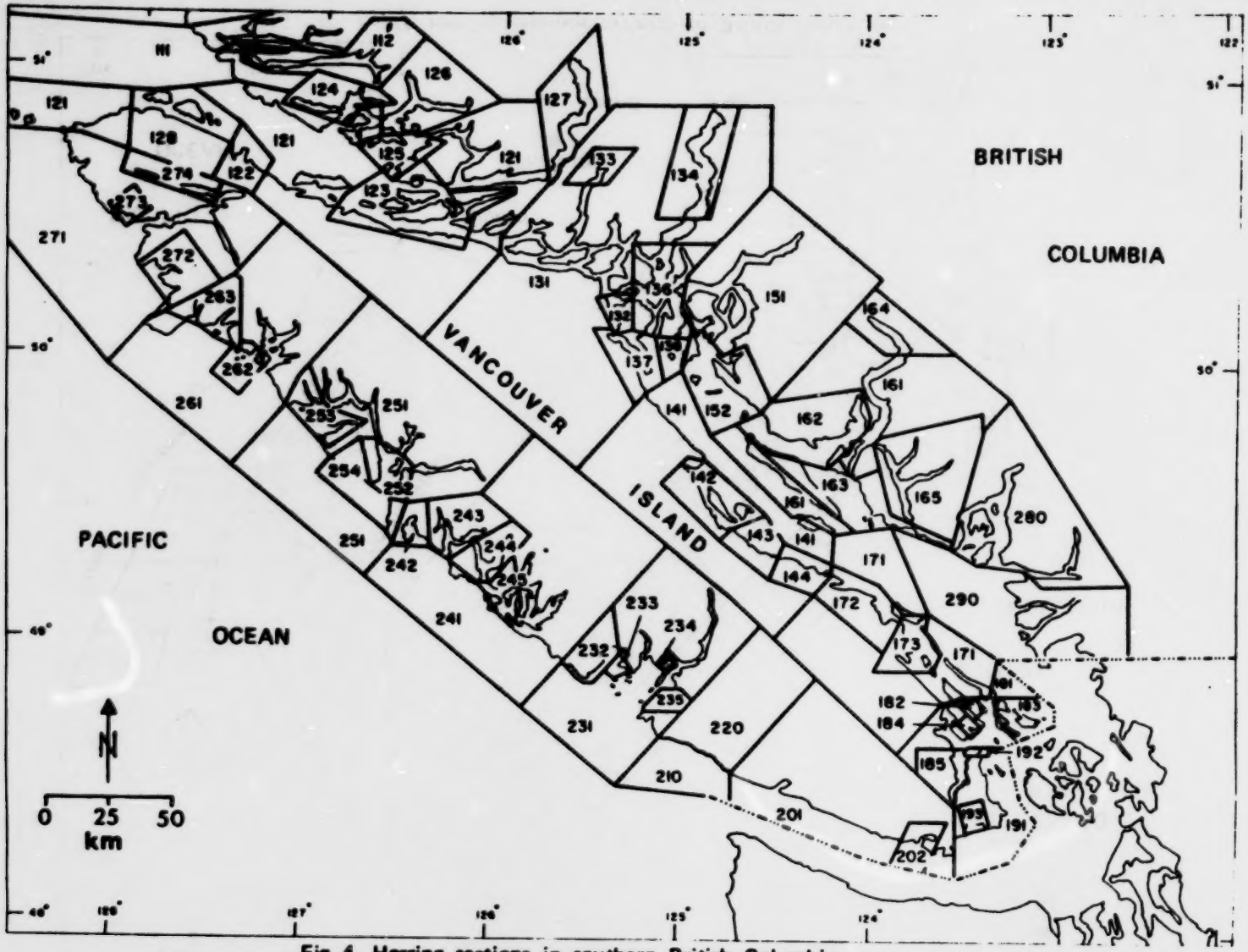


Fig. 4. Herring sections in southern British Columbia.

Table 3. Herring divisions and sections in British Columbia.

DIVISION		SECTION	
Code	Name	Code	Name
1	Queen Charlotte Islands	011	Other Area 1
		012	Naden Harbour
		006	Louscoone Inlet
		001	Other Area 2W
		002	Port Louis
		003	Rennell Sound
		004	Cartwright Sound
		005	Englefield Bay
		023	Cumshewa Inlet
		025	Skincuttle Inlet
		021	Other Area 2E
		022	Skidegate Inlet
		024	Laskeek Bay
2	North Coast	033	Port Simpson
		042	Big Bay
		043	Malacca Passage
		044	Edye Passage
		045	Gibson Group
		052	Kitkatla Channel
		031	Other Area 3
		032	Portland Inlet
		041	Other Area 4
		051	Other Area 5
		053	Anger Island
		054	Foul Bay
3	Central	067	Kitasu Bay
		072	Powell Anchorage
		073	Gunboat Passage
		074	Thompson Bay
		075	McNaughton Group
		076	Kildidt Sound
		085	Kwakshua Channel
		084	Burke Channel
3	Central (cont'd)	091	Other Area 9
		092	Rivers Inlet Mouth
		093	Rivers Inlet Head
		101	Other Area 10
		102	Takush Harbour
		103	Smith Inlet Head
		061	Other Area 6
		062	Promise Island
		063	Kitimat Arm
		064	Gardner Canal
		065	Princess Royal Channel
		066	Surf Inlet
		071	Other Area 7
		081	Other Area 8
		082	Kimsquit Bay
		083	Bentinck Arms
4	Johnstone Strait	123	Cracroft Island
		124	Watson Island
		125	Eden Island
		126	Kingcome Inlet
		127	Knight Inlet
		111	Other Area 11
		112	Nugent Sound
		121	Other Area 12
		122	Beaver Harbour
		128	Goletas Channel
		131	Other Area 13 Strait
		132	Kanish Bay
		133	Loughborough Inlet
		134	Bute Inlet

Table 3 (cont'd). Herring divisions and sections in British Columbia.

DIVISION		SECTION	
Code	Name	Code	Name
5	Strait of Georgia	152	Lund
		162	Stillwater
		142	Baynes Sound
		143	Qualicum
		144	French Creek
		172	Nanoose Bay
		173	Yellow Point
		182	Ganges Harbour
		183	Plumper Sound
		290	Boundary Bay
		136	Other Area 13 Gulf
		137	Heriot Bay
		138	Marina Island
		141	Other Area 14
		151	Other Area 15
		161	Other Area 16
		163	Pender Harbour
		164	Queens Reach
		165	Sechelt Inlet
		171	Other Area 17
		181	Other Area 18
		184	Fulford Harbour
		185	Saanich Inlet
		191	Other Area 19
		192	Tsehum Harbour
		193	Victoria Harbour
		201	Other Area 20
		202	Sooke Inlet
		280	Howe Sound
6	West Coast of Vancouver Island	232	Macoah Pass
		233	Mayne Bay
		210	Area 21
		218	Offshore Area 21
		220	Nitinat Lake
		231	Other Area 23
		234	Useless Inlet
		235	Bamfield Inlet
		238	Offshore Area 23
		244	Whitepine Cove
		245	Meares Island
		241	Other Area 24
		242	Hesquiat Harbour
		243	Sydney Inlet
		248	Offshore Area 24
		252	West Nootka
		254	Bajo Point
		253	Nuchatlitz Inlet
		272	Brooks Bay
		273	Winter Harbour
		251	Other Area 25
		261	Other Area 26
		262	Clanninick Cove
		263	Checleset Bay
		271	Other Area 27
		274	Holberg Inlet

Wheelhouse and Sample Log (Appendix Figs. 1a and 1b). The herring below a "cutoff" length (predetermined from past year's age/length data) are judged to be recruiting herring (Appendix Table 2). These small herring are less desirable due to having smaller gonads and thus giving lower roe yields. In addition, changes in the percentage of herring below the "cutoff" length could indicate changes in stock composition and may be important in setting fishery boundaries.

2. Roe yield

During the 1984 roe herring fishery, two methods of determining roe yield were used:

a) Volumetric method - this is the commonly used method and consists of filling a standard 4 imp. gal. (18 l) bucket level to the top with herring, stripping the ripe female roe into a calibrated volumetric cylinder and recording the percentage off the scale (Appendix Table 3).

b) Weight method - this was used mainly in the Strait of Georgia and West Coast Vancouver Island areas, as a method by itself or combined with the volumetric method for comparative purposes - the actual weight of the herring sample and roe is used to calculate the roe yield (Appendix Table 4).

In this report, the roe yield information tables give volume and adjusted volume or weight and adjusted weight depending on the area sampled. The adjusted roe yield values assume a 50:50 male/female sex ratio and the formula used for this adjustment is shown in Appendix Table 5. Generally, the overall herring population will have a 50:50 male/female sex ratio. However, this may not be the case in sample sets. For example, if the stocks are in a declining phase, two-year-old males may recruit to the spawning stock, rendering males the dominant sex; males breaking off from the main school just prior to spawning could be another factor affecting the overall sex ratio. Therefore, a 50:50 male/female sex ratio should be assumed with caution.

3. Laboratory samples

After each set, a biological sample containing a minimum of 100 herring was placed in a plastic bucket, sealed and either frozen or iced down for delivery to FRB for further analysis. During 1983, additional FRB samples were retained from preselected locations along the coast for determining herring fecundity and the Gonosomatic Index (GSI) used in predicting the rate of herring maturation.

RESULTS

During the 1983 roe herring charter program, the 12 charter seiners made 343 seine sample sets for an average of 28.6 sets per vessel (Table 4). A total of 631 roe tests were carried out onboard the charter vessels and 260 samples were retained for the FRB laboratory (Table 4). Samples were also retained for special research studies, i.e. Gonosomatic Index and fecundity studies. Hydroacoustic biomass estimates, roe yield information, sea surface water temperatures and length frequency distributions of herring were also recorded for each seine sample set (Tables 5-28).

ACKNOWLEDGEMENTS

The author would like to thank the charter vessel masters and crews for their "above the call of duty" effort during the test fishery operation. In addition to obtaining samples and providing biomass estimates, the charter vessel masters were part of the management team and were directly involved in management decisions for the commercial fishery openings, and they did an admirable job.

Appreciation is expressed to the fishery officers, technicians and biologists who ensured that sampling guidelines were followed and the data recorded in a concise manner. Thanks are also extended to Jim Mitchell who monitored the charter payment catch and did an excellent job, to Alvin Sewid who organized the sampling equipment, to Dennis Chalmers and Lloyd Webb who reviewed the text and to Alice Fedorenko who edited and prepared the report for publication. A special thanks is extended to Shiela Dawe for tabulating the data from the raw data sheets and to Valerie Rogers and the staff of the SEP Information/Processing Center for typing the drafts.

Table 4. Number of seine sets and roe tests by charter vessel, B.C., 1983.

Statistical Area	Charter vessel	No. of sets	No. of roe tests	No. of biological samples retained
2E	Snow Queen	26	44	17
2W	Ocean Marauder	38	67	27
3-5	Christav	41	51	30
6&7	Fisher Lassie II	36	86	31
6-8	Intrepid I	22	53	16
13-17	Westview No. I	46	69	30
12-17	Pacific Quest	31	56	23
13-15	Pacific Ocean	28	51	23
17&18	Argent Fisher	31	39	28
23	Pachena I	14	42	8
24	Ocean Horizon	18	43	16
23, 25-27	Bernice C	12	30	11
Total		343	631	260
Average		28.6	53	22
Range		12-46	30-86	8-30

Table 5. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "SNOW QUEEN", STAT. AREA 2E, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
024 (2E)	1	All Alone Stone	06/03/83	1045		300	50	8.6	1	45	58	33	42	9.0	10.64	28	2	3	Gonads	
									2	47	56	37	44	11.0	12.50	34	2	1	running	
024 (2E)	2	All Alone Stone	06/03/83	1325			0	8.55					Water haul						(M&F)	
025 (2E)	3	Section I.	06/03/83	1620		150	0	8.45					Water haul							
025 (2E)	4	Wanderer I.	06/03/83	1716			0	8.4					Water haul							
025 (2E)	5	Huxley I.	07/03/83	0500		500	150	8.4	1	42	51	41	49	11.5	11.64	37	1	3		
									3	44	53	39	47	12.0	12.77	36	0	3		
025 (2E)	6	N. End of Huxley I.	07/03/83	0755		200	M/E	8.55	1	50	57	37	43	10.75	12.65	33	1	3		
									2	43	51	42	49	11.5	11.64	38	1	3		
									3	37	43	49	57	14.0	12.28	44	2	3		
025 (2E)	7	Section I.	08/03/83	0935		800	0	8.35					Water haul							
025 (2E)	8	1 mi N. of Kat I.	08/03/83	1100		900	0	8.3					Water haul							
025 (2E)	9	1/4 mi S. of Dolomite Pt.	08/03/83	1215		500	300	8.4	1	41	47	46	53	13.0	12.29	39	0	7		
									2	56	62	34	38	8.5	11.24	30	0	4		
									3	52	59	36	41	10.5	12.84	32	1	3	1	
025 (2E)	10	Huxley I.	09/03/83	0635		60	5-10	8.3	1	40	47	46	53	13.5	12.62	41	0	5		
									2	33	39	52	61	14.5	11.85	45	0	7		
									3	43	43	56	57	14.0	12.37	47	1	8		
025 (2E)	11	Jedway Bay	10/03/83	1225	3500	400	2	8.55	1	50	54	43	46	12.0	12.99	38	2	3		
									2	43	49	44	51	14.0	13.83	42	0	2		
									3	43	46	50	54	15.0	13.94	47	1	2		

Table 5 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "SNOW QUEEN", STAT. AREA 2E, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
025 (2E)	12[a]	Deluge Pt.	11/03/83	0830		150-	55	8.5	1	44	48	47	52	14.5	14.05	45	0	2		
									2	47	53	41	47	13.0	13.95	38	0	3		
									3	50	54	42	46	12.5	13.68	42	0	0		
025 (2E)	13	S. End of Wanderer I.	12/03/83	0845		60	20	8.75	1	48	52	44	48	9.0	9.41	31	6	7		
									2	52	55	43	45	7.5	8.28	25	7	11		
									3	47	47	53	53	8.5	8.02	32	3	18		
025 (2E)	14	1 mi N. of Kat I.	12/03/83	1045		100	100	8.75	1	55	52	48	48	10.5	11.05	34	3	11		
									2	44	46	51	54	9.0	8.38	32	4	15		
									3	42	50	42	50	10.0	10.00	36	3	3		
006 (2W)	15[a]	Louscoone Inlet	13/03/83	0805		700	415	8.3	1	37	45	45	55	15.5	14.12	42	1	2	1	
									2	40	48	44	52	14.0	13.36	43	0	1		
									3	41	49	43	51	13.5	13.18	42	0	1		
025 (2E)	16	1 mi E. of Newberry Pt.	16/03/83	1450		100	0	8.85						Water haul						
025 (2E)	17	1 mi E. of Newberry Pt.	16/03/83	1525		1000	0	8.85						Water haul						
025 (2E)	18	N. end of Huxley I.	16/03/83	1950	7000-10,000	50	15	8.7	1	47	52	44	48	11.5	11.88	34	7	3		
									2	58	60	39	40	10.5	13.06	34	1	4		
024 (2E)	19	Sedgewick Bay	17/03/83	1840		600	200	8.85	1	66	64	37	36	10.0	13.93	33	3	1		
									2	49	53	44	47	11.0	11.63	36	8	0	1	
024 (2E)	20	Powrivco Pt.	19/03/83	1215	500	100	0	9.2						Water haul						
024 (2E)	21	1/2 mi E. of Ustas Pt.	19/03/83	1340		50	0	9.2						Water haul						
024 (2E)	22	Takelley Cove	19/03/83	1940	400	100	100	9.3	1	50	56	40	44	10.0	11.26	34	4	2		
									2	54	61	34	39	8.0	10.36	27	3	4		
024 (2E)	23	Selwyn Pt.	21/03/83	1955	3000-5000	Skim.	5	8.9	1	40	46	47	54	13.0	12.04	45	2	0		
									2	66	63	38	37	11.0	15.07	35	0	3	1	

Table 5 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "SNOW QUEEN", STAT. AREA 2E, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
023	24	Oliver I.	22/03/83	1520		250	200	9.0	1	42	47	48	53	15.0	14.07	48	0	0		
(2E)									2	48	52	44	48	14.5	15.17	43	1	0		
023	25	3/4 mi E. of	23/03/83	0725		100	75	8.8	1	50	53	45	47	14.0	14.77	44	1	0		
(2E)		Conglomerate Pt.							2	42	46	49	54	14.5	13.48	48	1	0		
024	26	Sewell Pt.	28/03/83	0435	3000	550	175	8.8	1	40	42	56	58	17.0	14.58	56	0	0		
(2E)									2	61	57	46	43	13.0	15.12	45	1	0		
									3	51	48	56	52	15.5	14.82	55	1	0		
										Some milt and eggs in sample buckets										

Seine Opening

Management sub-area 2 - 13 (Juan Perez Sound) opened on March 9 for 40 hours and 30 minutes for a halled catch of 5,030 tons, tested at 9.5% - 14% roe maturity.

Gillnet Opening

Management sub-area 2 - 14 (the approaches to Poole Inlet and along the Burnaby Island shoreline) opened March 15 for 9 hours for a halled catch of 1,100 tons, tested at 12% - 14% roe maturity.

[a]Charter payment herring.

Table 6. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "SNOW QUEEN", STAT. AREA 2E, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
024 (2E)	1	All Alone Stone	06/03/83	1045	1										10	17	17	5	0	1		50	22.9	19.5	0
024 (2E)	2	All Alone Stone	06/03/83	1325							Water haul														
025 (2E)	3	Section I.	06/03/83	1620							Water haul														
025 (2E)	4	Wanderer I.	06/03/83	1716							Water haul														
025 (2E)	5	Huxley I.	07/03/83	0500	2						3	1	1	2	9	17	15	3	1			50	22.2	19.5	8
025 (2E)	6	N. End of Huxley I.	07/03/83	0755	3						2	0	2	2	8	16	15	5	1			49	22.0	19.5	6
025 (2E)	7	Section I.	08/03/83	0935							Water haul														
025 (2E)	8	1 mi N. of Kat I.	08/03/83	1100							Water haul														
025 (2E)	9	1/4 mi S. of Dolomite Pt.	08/03/83	1215	4							1	4	1	11	18	13	2				50	22.3	19.5	6
025 (2E)	10	Huxley I.	09/03/83	0635	5					1	1	0	0	1	10	21	11	2	1	1		49	22.5	19.5	4
025 (2E)	11	Jedway Bay	10/03/83	1225	6							1	0	2	14	22	9	2				50	22.3	19.5	2
025 (2E)	12	Deluge Pt.	11/03/83	0830	7						1	0	1	2	14	13	18	1				50	22.4	19.5	2
025 (2E)	13	S. End of Wanderer I.	12/03/83	0845	8						1	2	1	2	18	17	9	2				52	22.0	19.5	6
021 (2E)	14	1 mi N. of Kat I.	12/03/83	1045	9					4	3	1	3	1	11	18	7	1	1			50	21.4	19.5	20

Table 6 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "SNOW QUEEN", STAT. AREA 2E, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
006 (2W)	15	Louscoone Inlet	13/03/83	0805	10							1	0	2	5	15	18	7	1	1		50	23.0	19.5	2
025 (2E)	16	1 mi E. of Newberry Pt.	16/03/83	1450								Water haul													
025 (2E)	17	1 mi E. of Newberry Pt.	16/03/83	1525								Water haul													
025 (2E)	18	N. end of Huxley I.	16/03/83	1950	11						4	0	1	2	13	13	11	5	1			50	22.2	19.5	10
024 (2E)	19	Sedgewick Bay	17/03/83	1840	12						3	2	0	2	5	23	12	3				50	22.2	19.5	10
024 (2E)	20	Powrivco Pt.	19/03/83	1215								Water haul													
024 (2E)	21	1/2 mi E. of Ustas Pt.	19/03/83	1340								Water haul													
024 (2E)	22	Takelley Cove	19/03/83	1940	13							3	1	3	14	20	7	2				50	22.0	19.5	6
024 (2E)	23	Selwyn Pt.	21/03/83	1955	14							1	4	5	8	14	9	5	4			50	22.4	19.5	4
025 (2E)	24	Oliver I.	22/03/83	1520	15					1	0	0	0	1	15	19	15	3	4			58	22.7	19.5	2
023 (2E)	25	3/4 mi E. of Conglomerate Pt.	23/03/83	0725	16								4	7	17	11	9	4	1	1		54	22.1	19.5	0
024 (2E)	26	Sewell Pt.	28/03/83	0435	17						1	1	3	11	15	16	3					50	21.5	19.5	6

Table 7. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "OCEAN MARAUDER", STAT. AREA 2W, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage: In loc.	Tonnage: Set on	Tonnage: Est. catch	Temp (°C)	Test No.	Sex Ratio: M No.	Sex Ratio: M %	Sex Ratio: F No.	Sex Ratio: F %	Roe Yield %: Vol.	Roe Yield %: Adj. vol.	Roe Grade (Pcs): #1	Roe Grade (Pcs): #2	Roe Grade (Pcs): #3	Spnd. out	Juv. or Immat.
003 (2W)	1	Rennell Sd. off Shields Cr.	01/03/83	0650	800	150	80		1	20	31	45	69	0	0	0	0	45		
002 (2W)	2	Port Louis off Solide I.	01/03/83	2123			200		1	37	51	36	49	0	0	1	8	27		
									2	28	39	44	61	0	0	1	4	39		
002 (2W)	3	Port Louis, Ogilvie I.	02/03/83	0704	1000	50	10	8.6	1	27	41	39	59	0	0	1	3	35	2	
									2	31	42	43	58	0.5	0.43	2	3	38	2	
002 (2W)	4	Port Louis	02/03/83	0805	1000	150	100	8.6	1	21	30	48	70	1.0	0.72	4	3	41		
002 (2W)	5	Port Louis, Kiokathill inlet	03/03/83	0657	2000	1000	50	8.6	1	26	41	37	59	10.0	8.52	26	4	7		
									2	24	37	41	63	10.0	7.92	27	5	9		
002 (2W)	6	Port Louis, Ogilvie I.	03/03/83	0915	2500	200	50		1	15	25	44	75	0		0	1	43	25	
									2	19	30	44	70	0		0	0	44	19	
002 (2W)	7	N. Shore Port Louis	03/03/83	1402	2000-3000	200	150		1	31	49	32	51	5.5	5.41	15	5	12		
									2	28	42	39	58	7.0	6.01	17	1	21		
									3	28	43	37	57	6.0	5.27	16	6	15		
002 (2W)	8	Port Louis, Turner Pt.	04/03/83	0949	1500	300	200	7.7	1	30	48	33	52	8.0	7.63	21	3	9		
									2	34	52	31	48	9.5	9.96	23	2	6		
									3	33	48	36	52	10.5	10.06	25	5	6		
002 (2W)	9	Port Louis, Solide I.	04/03/83	2248	3000	20-25	5	8.1	1	8	17	40	83	0	0	0	2	38	21	
									2	15	23	51	77	0	0	0	0	51	16	
002 (2W)	10	Port Louis, Ogilvie I.	06/03/83	0745		500	0		Water haul											
002 (2W)	11	Port Louis, Ogilvie I.	06/03/83	0815		100	100		1	17	28	44	72	0	0	0	0	44	18	
									2	19	31	43	69	0	0	1	0	42	12	
002 (2W)	12	Port Louis, Solide I.	06/03/83	1015	3000-4000	300	50		1	28	45	34	55	10.0	9.12	25	3	6		
									2	31	46	37	54	10.5	9.65	28	4	5	1	
									3	37	57	28	43	8.0	9.28	20	2	6	2	
005 (2W)	13	Moore Ch., Herbert Hd.	09/03/83	1205	1000-1500	500	0		Water haul											
005 (2W)	14	Moore Ch., Herbert Hd.	09/03/83	1259	1000-1500	500	0	8.0	Water haul											
005 (2W)	15	Moore Ch., Herbert Hd.	09/03/83	1409	1000-1500	100 150	0	8.0	Water haul											

Table 7 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "OCEAN MARAUDER", STAT. AREA 2W, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
005 (2W)	16	Off Herbert Hd.	09/03/83	1504	1000-1500	300	0	8.0		Water haul										
005 (2W)	17	Off Bell Pt.	09/03/83	1645	1500	300	150	8.0	1	61	72	24	28	0	0	0	0	24		
									2	41	49	43	51	0	0	0	0	43	1	
005 (2W)	18	Inside Sangster Pt.	10/03/83	1020	3000	50	30	8.0	1	40	48	43	52	0	0	0	0	43		
									2	45	53	40	47	0	0	0	4	36		
005 (2W)	19	Opposite Herbert Rd.	10/03/83	1930		skim	150	8.5	1	42	54	36	46	0	0	0	1	35		
									2	44	52	40	48	0	0	0	0	40		
005 (2W)	20	Inskip Ch., Hastings Pt.	11/03/83	1010	3000	100-150	0	8.5		Water haul										
005 (2W)	21	N. Shore - Outside Hastings Pt.	11/03/83	1305	3000	75-100	0	8.5		Water haul										
005 (2W)	22	Outside Hastings Pt.	11/03/83	1600	3000	150	0	8.5		Water haul										
005 (2W)	23	Outside Hastings Pt.	11/03/83	1914	3000	75	75	8.5	1	46	58	34	42	0	0	2	6	26		
									2	51	58	37	42	0	0	1	4	32		
									3	40	48	44	52	2.0	1.91	7	5	32		
									4	48	52	44	48	0	0	3	2	39		
005 (2W)	24	Off Hastings Pt.	12/03/83	0730	3000	100	25	8.0	1	35	38	57	62	0	0	2	0	55		
									2	35	38	58	62	0	0	2	4	52		
005 (2W)	25	Off Sangster Pt.	13/03/83	0830	3000+	500	200-400	8.0	1	31	36	54	64	1.0	0.79	3	1	50		
									2	35	41	50	59	0	0	1	2	47		
									3	49	54	41	46	0	0	0	4	37		
005 (2W)	26	Between Hastings Pt. & Instructor I.	14/03/83	0810	3000+	200	0	8.0		Water haul										
005 (2W)	27	Between Hastings Pt. & Instructor I.	14/03/83	0855	3000	200	75-100	8.0	1	34	43	46	57	1	0.87	5	6	35		
									2	39	45	48	55	0	0	3	0	45		
005 (2W)	28	Between Hastings Pt. & Instructor I.	15/03/83	0750	3000	100	50	8.0	1	52	59	36	41	1.0	1.22	5	2	29		
									2	38	42	53	58	3.0	2.58	10	6	37		
									3	51	60	34	40	2.0	2.50	8	7	19		

Table 7 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "OCEAN MARAUDER", STAT. AREA 2W, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
003 (2W)	29	Rennell Sd., Rockrun Cr.	15/03/83	1910	700-800		50	8.0	1	26	38	42	62	13.5	10.92	42	0	0		
									2	26	38	43	62	15.0	12.04	40	3	0		
									3	27	40	41	60	14.5	12.02	40	0	1		
003 (2W)	30	Off Rockrun Cr.	16/03/83	0745	700-800	100	50	8.0	1	18	29	44	71	16.5	11.62	42	2	0		
									2	21	34	40	66	17.0	12.96	40	0	0		
									3	25	36	44	64	19.0	14.89	43	1	0		
005 (2W)	31	Inskip Ch., between Hastings Pt. & Instructor I.	17/03/83	0740	3000	400	400	8.0	1	34	44	43	56	8.0	7.17	31	6	6		
									2	30	37	52	63	11.0	8.68	35	3	14		
									3	40	48	44	52	8.0	7.63	30	5	9		
005 (2W)	32	Off Hastings Pt.	18/03/83	0800	3500		0	8.0		Water haul										
005 (2W)	33	1/4 mi E. Hastings Pt.	18/03/83	0905	3500	200	25	8.0	1	52	61	33	39	6.5	8.38	23	1	9		
									2	56	64	31	36	4.0	5.62	15	4	12		
									3	52	55	43	45	9.0	9.93	30	3	10		
005 (2W)	34	Inside Hastings Pt.	19/03/83	0845	3500	150	50	8.0	1	49	55	40	45	9.0	10.02	33	2	5		
									2	62	67	30	33	5.0	7.67	20	2	8		
									3	55	66	28	34	6.0	8.90	18	1	9		
005 (2W)	35	Opposite Hastings Pt.	20/03/83	0805	3500	200	0	8.0		Water haul										
005 (2W)	36	1/2 mi E. Hastings Pt.	20/03/83	0910	3500	300	200	8.5	1	34	44	43	56	12.5	11.20	41	0	2		
									2	34	39	54	61	14.0	11.40	49	3	2		
									3	47	54	40	46	11.0	11.96	37	1	2		
005 (2W)	37	Between Leopold I. & Hastings Pt.	20/03/83	1540	3500	150-200	150-200	8.5	1	29	35	55	65	15.5	11.83	52	2	1		
									2	50	57	37	43	11.0	12.94	33	1	3		
									3	48	53	43	47	11.0	11.63	36	2	5		
003 (2W)	38[a]	Clonnard Bay	23/03/83	0515		200	150	8.0	1	35	51	34	49	12.0	12.17	34	0	0		
									2	27	40	41	60	14.0	11.61	41	0	0		
									3	30	43	39	57	14.0	12.39	39	0	0		

Seine Opening

Management sub-areas 2 - 37 and 2 - 38 (Inskip Channel) opened on March 21 for 10 hours and 46 minutes for a hailed catch of 1,470 tons.

[a] Charter payment herring.

Table 8. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "OCEAN MARAUDER", STAT. AREA 2W, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
003 (2W)	1	Rennell Sd. off Shields Cr.	01/03/83	0650	1										11	23	33	15	6	1		89	23.3	20.0	0
002 (2W)	2	Port Louis off Solide I.	01/03/83	0704	2									1	6	10	18	13	2			50	23.3	20.0	0
002 (2W)	3	Port Louis, Ogilvie I.	02/03/83	0704	3									3	6	18	17	6	1			51	22.9	20.0	0
002 (2W)	4	Port Louis	02/03/83	0805	4										5	12	17	15	1			50	23.4	20.0	0
002 (2W)	5	Port Louis, Kiokathill inlet	03/03/83	0657	5										6	12	22	11				51	23.2	20.0	0
002 (2W)	6	Port Louis, Ogilvie I.	03/03/83	0915	6						3	3	1	4	8	10	16	5				50	22.1	20.0	14
002 (2W)	7	N. Shore Port Louis	03/03/83	1402	7						1			1	2	18	23	4			1	50	23.0	20.0	2
002 (2W)	8	Port Louis, Turner Pt.	04/03/83	0949	8										1	11	26	10	2			50	23.5	20.0	0
002 (2W)	9	Port Louis, Solide I.	04/03/83	2248	9						2		2	2	7	14	19	3				49	27.5	20.0	8
002 (2W)	10	Port Louis, Ogilvie I.	06/03/83	0745	-						Water haul														
002 (2W)	11	Port Louis, Ogilvie I.	06/03/83	0815	10						1	1		2	6	10	15	15				50	23.0	20.0	4
002 (2W)	12	Port Louis Solide I.	06/03/83	1015	11										3	15	22	10				50	23.3	20.0	0

Table 8 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "OCEAN MARAUDER", STAT. AREA 2W, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
005 (2W)	13	Moore Ch., Herbert Hd.	09/03/83	1205	-							Water haul										-	-	-	-
005 (2W)	14	Moore Ch., Herbert Hd.	09/03/83	1259	-							Water haul										-	-	-	-
005 (2W)	15	Moore Ch., Herbert Hd.	09/03/83	1409	-							Water haul										-	-	-	-
005 (2W)	16	Off Herbert Hd.	09/03/83	1504	-							Water haul										-	-	-	-
005 (2W)	17	Off Bell Pt.	09/03/83	1645	12							1	7	9	17	12	2					48	21.3	20.0	17
005 (2W)	18	Inside Sangster Pt.	10/03/83	1020	13								1	7	25	9	5	2	1			50	21.9	20.0	2
005 (2W)	19	Opposite Herbert Hd.	10/03/83	1930	14								1	9	18	14	8	1				51	21.9	20.0	2
005 (2W)	20	Inskip Ch., Hastings Pt.	11/03/83	1010	-							Water haul										-	-	-	-
005 (2W)	21	N. Shore - Outside Hastings Pt.	11/03/83	1305	-							Water haul										-	-	-	-
005 (2W)	22	Outside Hastings Pt.	11/03/83	1600	-							Water haul										-	-	-	-
005 (2W)	23	Outside Hastings Pt.	11/03/83	1914	15									9	20	13	1	4	2			49	22.0	20.0	0
005 (2W)	24	Off Hastings Pt.	12/03/83	0730	16							1	3	7	25	11	2	1				50	21.5	20.0	8
005 (2W)	25	Off Sangster Pt.	13/03/83	0830	17								2	12	18	13	4	1				50	21.7	20.0	4

Table 8 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "OCEAN MARAUDER", STAT. AREA 2W, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
005 (2W)	26	Between Hastings Pt. & Instructor I.	14/03/83	0810	-									Water haul								-	-	-	-
005 (2W)	27	Between Hastings Pt. & Instructor I.	14/03/83	0855	18									8	18	17	7	1				51	22.0	20.0	0
005 (2W)	28	Between Hastings Pt. & Instructor I.	15/03/83	0750	19							1	2	7	25	4	8	2				49	21.7	20.0	6
003 (2W)	29	Rennell Sd., Rockrun Cr.	15/03/83	1910	20								2		12	14	17	4		1		50	22.7	20.0	4
003 (2W)	30	Off Rockrun Cr.	16/03/83	0745	21										2	8	25	14	1			50	23.6	20.0	0
005 (2W)	31	Inskip Ch., between Hastings Pt. & Instructor I.	17/03/83	0740	22								3	7	20	15	5					50	21.7	20.0	6
005 (2W)	32	Off Hastings Pt.	18/03/83	0800	-									Water haul								-	-	-	-
005 (2W)	33	1/4 mi E. Hastings Pt.	18/03/83	0905	23							1	1	6	15	17	5	4				49	22.1	20.0	4
005 (2W)	34	Inside Hastings Pt.	19/03/83	0845	24								3	14	22	8	2	1				50	21.4	20.0	6
005 (2W)	35	Opposite Hastings Pt.	20/03/83	0805	-									Water haul								-	-	-	-
005 (2W)	36	1/2 mi E. Hastings Pt.	20/03/83	0910	25									6	15	17	8	3	1			50	22.3	20.0	0
005 (2W)	37	Between Leopold I. & Hastings Pt.	20/03/83	1540	26									8	15	13	11	2	1	1		51	22.3	20.0	0
005 (2W)	38	Clonnard Bay	23/03/83	0515	27									2	10	18	16	4				50	22.7	20.0	0

Table 9. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "CHRISTAV", STAT. AREAS 3 - 5, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
032 (3)	1	Union Inlet	10/03/83	1400	50	40-50	40-50	5	1	70	64	39	36	0	0	0	0	39		
									2	55	53	48	47	0	0	0	0	48		
032 (3)	2	Upper Steamer Pass	11/03/83	1515	100	70-100	15	7.2	1	82	53	73	47	0	0	0	0	73		9
									2	91	54	78	46	0	0	0	0	78		13
032 (3)	3	Sommerville Bay	12/03/83	0730	25	25	15	6.7	1	8	33	16	67	0	0	0	0	16		42
032 (3)	4	Outside Sommerville Bay	13/03/83	0645		50	0	6.7	Water haul											
032 (3)	5	Nasoga Gulf	13/03/83	0930	500-600	75	20	6.7	1	91	80	23	20	0	Small herring	0	0	23		344
032 (3)	6	Upper Steamer Pass	13/03/83	1750	500-600	80-100	10	6.7	1	36	55	30	45	0	Small herring	0	0	30		346
032 (3)	7	Elliot Pt.	14/03/83	0945	600-700	200	0	7.2	Water haul											
032 (3)	8	1 mi N. Elliot Pt.	14/03/83	1015	700	500	0	7.2	Water haul											
032 (3)	9	1 mi Elliot Pt.	14/03/83	1345	1500-2000	500	0	7.2	Water haul											
052 (5)	10	W. Gurd I.	17/03/83	0630	1500	Jumpers	10	6.7	1	77	61	50	39	0	0	1	8	41	9	11
									2	59	47	67	53	0	0	4	1	62		26
035 (3)	11	Haida Bay	17/03/83	1900	200	200	50-60	7.8	1	64	58	46	42	0.5	0.60	4	3	39		
									2	56	51	53	49	0.5	0.51	4	5	44		
033 (3)	12	Stuneun Bay	18/03/83	0745	1000	400	200	6.7	1	65	63	38	37	2.5	3.39	10	3	25		
									2	65	59	45	41	3.5	4.24	14	4	27		
033 (3)	13	Stuneun Bay	18/03/83	1045	1000-1500	500	300-400	6.7	1	59	63	34	37	2.0	2.73	11	6	17		
									2	52	51	49	49	2.0	2.06	10	9	30		
032 (3)	14	Wales Pass & Manzanita Cove	18/03/83	1530	2000	400	200-300	6.7	1	58	58	42	42	3.0	3.57	12	7	25		
									2	57	52	52	48	2.0	2.08	11	16	25		

Table 9 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "CHRISTAV", STAT. AREAS 3 - 5, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
033 (3)	15	Cunningham Pass	19/03/83	1620	1500	150	150	6.9	1	57	49	59	51	2.5	2.46	15	16	28		
									2	48	43	64	57	4.0	3.50	19	20	25	#1 roe	
033 (3)	16	Stumaun Bay	21/03/83	1145	5000+	2000	500-600	6.7	1	51	53	46	47	2.5	2.64	12	21	13	grade	
									2	57	55	47	45	3.0	3.32	16	23	8	close to	
042 (4)	17	Pearl Harbour	22/03/83	0900	200-300	70 80	40	6.7	1	51	49	54	51	5.5	5.35	27	15	12	#2 roe	
									2	64	60	43	40	5.5	6.84	23	12	8	grade	
042 (4)	18	Pearl Harbour	23/03/83	0900	1000	1000	300	6.7	1	53	49	55	51	8.0	7.86	41	9	5		
									2	47	46	55	54	10.0	9.28	43	8	4		
052 (5)	19	Outside Freeman (2 mi off Hecate Straits)	24/03/83	0530	1000	300	100	7.5	1	48	41	70	59	7.0	5.90	36	12	22		
									2	62	50	62	50	5.5	5.50	29	15	18		
052 (5)	20	Snass Pt., Kitkatla Inlet	24/03/83	1950	300	50	20	7.5	1	68	54	57	46	9.87	10.82	42	7	8		
									2	61	50	60	50	9.58	9.66	44	6	10		
052 (5)	21	Gurd Pt.	25/03/83	0600	200-300	100	100	7.2	1	58	52	53	48	11.0	11.53	46	3	4		
									2	54	51	52	49	13.0	13.24	47	1	4		
052 (5)	22	East Side of Gurd I.	25/03/83	0845	2000+	200	150	7.5	1	64	57	49	43	11.0	12.67	46	0	3		
									2	54	47	61	53	14.0	13.21	54	6	1		
052 (5)	23	East Side of Gurd I.	25/03/83	1945	200-300	50	25	7.2	1	43	41	62	59	12.8	10.85	57	3	2		
									2	68	59	48	41	14.5	17.51	44	2	2		
033 (3)	24	Stumaun Bay	27/03/83	1000	1000	50	50	7.2	1	56	41	80	59	9.5	8.08	54	9	17		
									2	71	51	68	49	5.0	5.11	35	9	24		
033 (3)	25	Cunningham Pass	27/03/83	1115	300	50	50	7.2												
042 (4)	26	Outside Pearl Hbr.	27/03/83	1240		100	0	7.2		Water haul										
033 (3)	27	Cunningham Pass	27/03/83	1440		50	50	7.8	1	82	54	71	46	4.5	4.85	31	10	30		4
033 (3)	28	Stumaun Bay	27/03/83	1600		30	10	7.4	1	59	52	55	48	4.5	4.67	24	8	23		8

Table 9 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "CHRISTAV", STAT. AREAS 3 - 5, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
052 (5)	29[a]	Robert I.	28/03/83	0700	1000	500	80	7.2	1	51	50	51	50	12.0	12.00	49	1	1		
052 (5)	30	Wilcox Group	28/03/83	1745	3000	10'	10		1	53	52	48	48	13.0	13.68	47	0	1		
052 (5)	31	Robert I.	28/03/83	1900		50	0	7.5		Water haul										
052 (5)	32[a]	Serpentine Inlet	29/03/83	0800		25	250	7.8	1	59	54	51	46	12.0	12.93	51	0	0		
									2	43	40	65	60	15.5	12.87	62	1	2		
052 (5)	33	Sparrowhawk Pt.	31/03/83	1315	300	300	0	7.5		Water haul										
044 (4)	34	Edye Passage	02/04/83	0830	100	10	10	7.8	1	33	31	72	69	0		0	0	72		
044 (4)	35	Edye Passage	03/04/83	1645	100	50	50	8.1	1	63	68	29	32	0		0	0	29	16	
053 (5)	36	Wilson Inlet	13/04/83	0830	surface-finning		0			Water haul										
053 (5)	37	W. Side of Tangent I.	13/04/83	0930	300	150	100		1	39	35	71	65	16.0	12.40	70	0	1		
									2	60	49	63	51	14.0	13.67	62	0	1		
053 (3)	38	Head of Wilson Inlet	13/04/83	1330	500	100+	100+	8.9	1	56	44	70	56	15.0	13.49	68	1	1		
									2	62	51	59	49	14.5	14.86	58	1	0		
043 (4)	39	Arthur Pass off Bottom Kennedy I.	15/04/83	0800		25	0			Water haul										
033 (3)	40	Stuwuun Bay	16/04/83	1330	1000	25	20 lb		1	26	63	15	37			10	0	5	1	
033 (3)	41	Stuwuun Bay	16/04/83	1545	1000	75	75		1	64	53	56	47	9.0	9.64	38	1	17		43

No commercial fishery openings in Areas 3 - 5.

[a] Charter payment herring.
There was no fishery in the Prince Rupert area in 1983.

Table 10. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "CHRISTAV", STAT. AREAS 3 - 5, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
032 (5)	1	Union Inlet	10/03/83	1400	1							4	6	17	15	6	2	2				50	21.0	18.5	0
032 (3)	2	Upper Steamer Pass	11/03/83	1515	2	.		1	2	5	10	13	11	6	1	0	1					50	18.5	18.5	50
032 (3)	3	Sommerville Bay	12/03/83	0730	3	1	6	10	23	5	2	1										48	15.2	18.5	100
032 (3)	4	Outside Sommerville Bay	13/03/83	0645	-					Water haul												-	-	-	-
032 (3)	5	Nasoga Gulf	13/03/83	0930	4	8	15	19	7	1	0	1										51	14.1	18.5	98
032 (3)	6	Upper Steamer Pass	13/03/83	1750	5	1	7	22	11	5	3	1										50	15.0	18.5	100
032 (3)	7	Elliot Pt.	14/03/83	0945	-					Water haul												-	-	-	-
032 (3)	8	1 mi N. Elliot Pt.	01403/83	1015	-					Water haul												-	-	-	-
032 (3)	9	1 mi North Elliot Pt.	14/03/83	1345	-					Water haul												-	-	-	-
052 (5)	10	W. Gurd I.	17/03/83	0630	6			1	2	0	4	8	6	8	15	3	3					50	20.1	18.5	22
033 (3)	11	Haida Bay	17/03/83	1900	7							4	2	8	20	13	3					50	21.4	18.5	4
033 (5)	12	Stuwun Bay	18/03/83	0745	8							2	4	12	19	10	2	2				51	21.4	18.5	0
033 (3)	15	Stuwun Bay	18/03/83	1045	9							4	3	10	12	13	6	2				50	21.6	18.5	4
032 (5)	14	Wales Pass & Manzanita Cove	18/03/83	1550	10							1	3	11	10	17	8					50	21.8	18.5	2

Table 10 (cont'd). Length frequency distribution of herring. RUE HERRING CHARTER SEINER "CHRISTAV", STAT. AREAS 3 - 5, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
033 (3)	15	Cunningham Pass	19/03/83	1620	11						2	2	6	10	13	10	6	0	1			50	21.3	18.5	4
033 (3)	16	Stumaun Bay	21/03/83	1145	12							3	4	8	21	11	3					50	21.3	18.5	0
042 (4)	17	Pearl Harbour	22/03/83	0900	13						2	3	7	12	11	9	4	1	0	1		50	21.1	18.5	8
042 (4)	18	Pearl Harbour	23/03/83	0900	14						1	2	3	9	13	18	4					50	21.5	18.5	4
052 (5)	19	Outside Freeman-(2 mi off Hecate Straits)	24/03/83	0530	15					1	2	8	4	5	19	7	3	1				50	20.8	18.5	12
052 (5)	20	Sness Pt., Kitkatla Inlet	24/03/83	1930	16					1	2	7	7	7	15	10	1					50	20.6	18.5	10
052 (5)	21	Gurd Pt.	25/03/83	0600	17							5	5	9	18	8	4	1				50	21.2	18.5	6
052 (5)	22	East Side of Gurd I.	25/03/83	0845	18					1	0	5	6	5	18	12	3					50	21.1	18.5	8
052 (5)	23	East Side of Gurd I.	25/03/83	1945	19						1	7	3	10	17	10	2					50	21.0	18.5	6
033 (3)	24	Stumaun Bay	25/03/83	1000	20				1	0	2	13	12	3	8	8	3					50	20.2	18.5	20
033 (3)	25	Cunningham Pass	27/03/83	1115	21			2	4	8	20	10	4	1	0	0	1					50	17.6	18.5	82
042 (4)	26	Outside Pearl Hbr.	27/03/83	1240	-						Water haul											-	-	-	-
033 (3)	27	Cunningham Pass	27/03/83	1440	22						5	12	8	14	6	1	4					50	19.0	18.5	46
033 (3)	28	Stumaun Bay	27/03/83	1600	22							2	6	3	8	5	1	2	1			28	20.4	18.5	11

Table 10 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "CHRISTAV", STAT. AREAS 3 - 5, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
052 (5)	29	Robert I.	28/03/83	0700	23				1	0	0	0	4	6	19	12	6	2				50	21.7	18.5	2
052 (5)	30	Wilcox Group	28/03/83	1745	24						2	5	1	7	19	10	4	1	1			50	21.4	18.5	4
052 (5)	31	Robert I.	28/03/83	1900	-				Water haul																
052 (5)	32	Serpentine Inlet	29/03/83	0800	25					3	4	5	6	7	11	11	3					50	20.5	18.5	18
052 (5)	33	Sparrowhawk Pt.	31/03/83	1315	-				Water haul																
044 (4)	34	Edye Passage	02/04/83	0830	26							2	3	7	10	15	9	2	2			50	22.1	18.5	2
044 (4)	35	Edye Passage	03/04/83	1645	27							2	4	5	12	11	11	3	2			50	22.1	18.5	0
053 (5)	36	Wilson Inlet	13/04/83	0830	-				Water haul																
053 (5)	37	W. Side of Tangent I.	13/04/83	0930	27					1	1	6	6	7	14	12	3					50	20.9	18.5	10
053 (5)	38	Head of Wilson Inlet	13/04/83	1330	28				1	0	3	4	7	14	11	8	1					49	20.5	18.5	14
043 (4)	39	Arthur Pass off Bottom Kennedy I.	15/04/83	0800	-				Water haul																
033 (3)	40	Stumaun Bay	16/04/83	1330	29	1	4	5	9	11	12	2	3	2	1							50	16.6	18.5	84
033 (3)	41	Stumaun Bay	16/04/83	1545	30			2	2	5	14	6	3	6	4	2	4	1		1		50	19.1	18.5	54

Table 11. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 and 7, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
074 (7)	1	Clarie I.	01/03/83	1950	1000	1000	500	7.5	1	37	41	53	59	0	0	0	0	53		
									2	42	43	55	57	0	0	0	0	55		
074 (7)	2	Boddy Narrows	01/03/83	2130	1000	1000	300	7.3	1	45	51	44	49	0	0	0	0	44		
074 (7)	3	Idol Pt.	02/03/83	0720	400-500	400-500	0	6.8		Water haul										
072 (7)	4	Barry Inlet	02/03/83	0900	500	400	300	6.9	1	38	44	49	56	0	0	0	0	49		
									2	46	52	42	48	0	0	0	0	42		
074 (7)	5	Thompson Bay	02/03/83	1915	2000-3000	1500	300	7.6	1	40	44	50	56	0	0	0	0	50		
									2	42	48	45	52	0	0	0	0	45		
074 (7)	6	West Waskasu	02/03/83	2050	1200-1500	1000	200	7.7	1	44	53	39	47	0	0	0	0	39		
									2	40	45	48	55	0	0	0	0	48		
074 (7)	7	Thompson Bay	03/03/83	0740	200	100	60	7.1	1	37	44	48	56	0	0	2	0	46		
									2	29	34	57	66	0	0	0	0	57		
067 (6)	8	Kitasu Bay	03/03/83	1820	1000	1000	7	7.6	1	23	24	71	76	0	0	0	0	71		
									2	29	30	67	70	0	0	0	0	67		
067 (6)	9	Kitasu Bay	04/03/83	0745	1000	400	300	7.2	1	45	44	57	56	0	0	2	0	55		
									2	49	51	47	49	0	0	1	3	43		
074 (7)	10	Joassa Ch.	04/03/83	1615		70	60	7.3	1	27	30	63	70	0	0	0	0	63		
									2	43	39	67	61	0	0	0	0	67		
074 (7)	11	Clarie I.	04/03/83	1930	3000-4000	1000	500		1	38	44	48	56	0	0	3	0	45		
									2	40	44	50	56	0	0	0	0	50		
074 (7)	12	Stryker Bay	06/03/83	1430	300	150	25-30	7.3	1	36	42	49	58	0	0	5	3	41		
									2	38	42	52	58	1.0	0.87	7	0	45		
074 (7)	13	Thompson Bay	06/03/83	1915	3000-4000	1000	500	7.7	1	35	39	54	61	0	0	0	0	54		
									2	39	44	50	56	0	0	0	0	50		
067 (6)	14	Thistle Bay	08/03/83	1000	600	500	75	7.4	1	59	54	51	46	0	0	0	0	51		
									2	47	47	52	53	0	0	0	0	52		
														0	0					

Table 11 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 and 7, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
067 (6)	15	W. Higgins Pass.	09/03/83	1550	500	100	60	7.3	1	48	48	53	52	7.5	7.14	29	2	22		
									2	50	52	46	48	5.0	5.22	20	2	24		
									3	60	61	39	39	5.0	6.35	21	3	15		
067 (6)	16	W. Higgins Pass.	10/03/83	0830		500-600	150	7.2	1	60	65	32	35	3.5	5.03	13	3	16	1	
									2	54	56	42	44	4.0	4.57	16	8	18		
									3	42	46	50	54	5.0	4.60	21	10	19		
072 (7)	17	Berry Hbr.	10/03/83	2000	500	Skim.	4-5	7.5	1	42	42	57	58	4.0	3.47	19	8	30		
									2	34	34	66	66	2.0	1.52	7	9	50		
									3	43	45	53	55	2.0	1.81	11	5	37		
074 (7)	18	W. Stryker I. (Louise Ch.)	11/03/83	0836	500-600	200	0	7.8		Water haul										
074 (7)	19	Clarie I.	12/03/83	1810	400-500	150	75	7.3	1	40	38	64	62	0	0	3	3	58		
									2	37	45	46	55	0.1	0.09	3	5	38		
									3	38	46	44	54	0.3	0.28	10	3	31		
074 (7)	20	Stryker Bay	12/03/83	1930		700-800	300	7.8	1	61	65	33	35	3.0	4.27	13	3	17		
									2	29	43	39	57	2.7	2.35	6	6	27		
									3	45	49	46	51	2.0	1.98	8	10	28		
067 (6)	21	W. Higgins Pass.	13/03/83	1145	2000-2500	500	400	7.7	1	49	54	41	46	9.5	10.42	32	4	5		
									2	47	53	41	47	8.0	8.58	32	4	5		
									3	54	55	45	45	9.5	10.44	35	5	5		
									4	32	48	34	52	11.6	11.26	30	2	2		
									5	23	34	45	66	12.2	9.21	28	6	11		
									6	31	48	34	52	10.8	10.33	27	3	4		
067 (6)	22	W. Higgins Pass.	14/03/83	0645	2000-2500	100	100	7.8	1	37	54	31	46	9.0	9.87	23	2	6		
									2	33	50	33	50	10.6	10.60	28	2	3	1	
									3	36	54	31	46	9.6	10.37	24	2	5		
									4	48	52	45	48	9.0	9.30	37	2	6		
									5	64	58	47	42	10.0	11.82	36	1	10		
									6	52	55	43	45	10.0	11.04	35	4	4		

Table 11 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 and 7, 1983

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
074 (7)	23	W. Stryker I. (Louise Ch.)	14/03/83	1445	1000	300	200	7.8	1	48	53	43	47	8.5	8.99	29	6	8		
									2	35	40	53	60	6.0	4.98	24	13	16		
									3	42	47	48	53	8.5	7.97	28	9	11		
																No. 2 - very close to #1				
074 (7)	24	Stryker Bay	14/03/83	1645	1500-2000	1000	400-500	7.8	1	49	51	47	49	6.0	6.12	19	8	20		
									2	40	42	55	58	6.5	5.61	26	7	22		
									3	50	50	51	50	6.0	5.94	25	5	21		
074 (7)	25	W. Stryker I. (Louise Ch.)	15/03/83	0930	2000-2500	300	50	7.8	1	60	63	35	37	5.0	6.79	20	5	10		
									2	56	55	46	45	7.0	7.76	25	8	13		
									3	36	43	47	57	8.0	7.07	29	11	7		
074 (7)	26	W. Stryker I. (Louise Ch.)	17/03/83	1323	2000	1500	500	8.2	1	54	57	41	43	11.5	13.31	36	3	2		
									2	47	50	47	50	11.0	11.00	40	3	4		
									3	56	58	40	42	11.0	13.19	37	1	2		
																Gonads running				
074 (7)	27	W. Stryker I. (Agnew I.)	17/03/83	1600	2000-3000	2000-3000	75-100	8.1	1	48	50	49	50	12.5	12.38	43	3	3		
									2	60	59	42	41	10.0	12.14	38	1	3		
									3	46	46	55	54	12.0	11.01	45	1	9		
																Gonads running				
074 (7)	28	Stryker Bay	18/03/83	0620	40-50	40-50	40-50	7.8	1	49	49	50	51	10.0	9.90	40	4	6		
									2	55	51	52	49	10.0	10.29	45	1	6		
									3	51	48	55	52	11.0	10.60	42	3	10		
074 (7)	29	W. Stryker I. (Louise Ch.)	18/03/83	0710	2000-3000	1000	0			Water haul										
074 (7)	30	W. Stryker I. (Louise Ch.)	18/03/83	0730	2000-3000	1000	10	8.1	1	54	46	64	54	9.0	8.30	39	1	24		
								Sample not representative - topped school. Herring sounded.													
074 (7)	31	W. Stryker I. (Agnew Is.)	18/03/83	1810			0			Water haul										

Table II (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 and 7, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
074 (7)	32[a]	W. Stryker I. (Louise Ch.)	18/03/83	2010	1000	100	75-80	8.4	1	47	46	56	54	12.0	11.03	47	1	8		
									2	53	54	45	46	10.0	10.89	35	1	9		
									3	65	58	47	42	8.0	9.52	33	1	13		
									4	41	48	45	52	13.0	12.43	38	0	7		
072 (7)	33[a]	Ivory I. (Powell Anch.)	19/03/83	1120	400-500	15	15	8.3	1	41	46	49	54	14.0	12.87	46	2	1		
									2	40	47	46	53	14.5	13.55	46	0	0		
									3	54	55	44	45	12.0	13.36	39	2	3		
072 (7)	34[a]	Ivory I. (Reid Pass.)	19/03/83	1440	1000	200	100	8.2	1	49	55	40	45	14.0	15.59	40	0	0		
									2	48	49	50	51	14.0	13.73	48	0	2		
									3	43	44	54	56	14.5	13.02	52	1	1		
071 (7)	35	Lama Pass. (McLoughlin B.)	20/03/83	1745	100-150	50	50	7.9	1	62	49	64	51	12.0	11.81	60	3	1		
									2	49	43	65	57	13.5	11.84	63	2	0	1	
074 (7)	36	Thompson Bay	21/03/83	0900	2000	1000	400-500	8.0	1	35	39	55	61	15.0	12.27	54	0	1		
									2	45	46	53	54	15.0	13.86	51	0	2	1	
									3	45	45	56	55	14.5	13.09	54	0	2		

Seine Opening

Management sub-area 7-19 (East Houghton Islands) opened on March 15 for 15 minutes for a hailed catch of 2,150 tons, tested at 12% roe maturity.

Gillnet Opening

Management sub-areas 6-16, 6-18 and that part of 7-1 comprising the west coast of Price Island (Wilby Point to Day Point) opened on March 21 for 4 hours and 30 minutes for a hailed catch of 2,500 tons.

Management sub-areas 7-1, 7-2, 7-9, 7-18, 7-19, 7-20 and 7-23 opened on March 23 for 3 hours for a hailed catch of 1,600 tons, tested at 13.5% roe maturity.

[a] Charter payment herring.

Table 12. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 and 7, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
074 (7)	1	Clarie I.	01/03/83	1950	1						1	7	8	10	13	11						50	20.7	18.5	12
074 (7)	2	Boddy	01/03/83	2130	2						2	3	6	10	11	13	3					48	21.1	18.5	8
074 (7)	3	Narrows Idol Pt.	02/03/83	0720	-	Water haul																-	-	-	-
072 (7)	4	Berry	02/03/83	0900	3						1	1	4	7	22	11	3	1				50	21.5	18.5	4
074 (7)	5	Inlet Thompson	02/03/83	1915	4							1	4	7	23	15	1					51	21.5	18.5	0
074 (7)	6	Bay West	02/03/83	2050	5								1	3	17	23	6					50	22.1	18.5	0
074 (7)	7	Waskasu Thompson	03/03/83	0740	6						1	1	3	6	19	15	6					51	21.7	18.5	2
067 (6)	8	Bay Kitasu	03/03/83	1820	7					1		3	3	12	16	11	3	1				50	21.3	18.5	8
067 (6)	9	Bay Kitasu	04/03/83	0745	8						1	1	1	7	24	12	3	1				50	21.6	18.5	2
074 (7)	10	Bay Joassa	04/03/83	1615	9					1	4	3	6	11	15	9	1					50	20.7	18.5	10
074 (7)	11	Ch. Clarie I.	04/03/83	1930	10						1	2	3	8	14	23	5					56	21.7	18.5	4
074 (7)	12	Stryker	06/03/83	1430	11							1	1	3	12	22	9	2				50	22.3	18.5	2
074 (7)	13	Bay Thompson	06/03/83	1915	12								3	7	17	17	5	1				50	21.8	18.5	0
067 (6)	14	Bay Thistle Pass.	08/03/83	1000	13						1		2	14	18	12	2	1				50	21.4	18.5	2

Table 12 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 and 7, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
067 (6)	15	W. Higgins Pass	09/03/83	1550	14								3	6	16	12	9	3		1		50	22.1	18.5	0
067 (6)	16	W. Higgins Pass	10/03/83	0830	15								1	9	22	15	3					50	21.7	18.5	0
072 (7)	17	Berry Hbr.	10/03/83	2000	16					2	2	9	5	1	14	15	2					50	20.8	18.5	16
074 (7)	18	W. Stryker I. (Louise Ch.)	11/03/83	0836	-					Water haul												-	-	-	-
074 (7)	19	Clarie I.	12/03/83	1810	17						1	8	10	6	13	10	2					50	20.7	18.5	8
074 (7)	20	Stryker Bay	12/03/83	1930	18					1	1		6	6	12	18	5	1				50	21.6	18.5	4
067 (6)	21	W. Higgins Pass	13/03/83	1145	19									9	15	19	4	2	1			50	22.1	18.5	0
067 (6)	22	W. Higgins Pass	14/03/83	0645	20								1	9	20	10	10					50	21.9	18.5	0
074 (7)	23	W. Stryker I. (Louise Ch.)	14/03/83	1445	21							1	2	7	13	15	9	1	2			50	22.1	18.5	0
074 (7)	24	Stryker Bay	14/03/83	1645	22						1	1	4	5	14	17	7		1			50	21.8	18.5	2
074 (7)	25	W. Stryker I. (Louise Ch.)	15/03/83	0930	23						1	7	2	3	15	15	4	2	1			50	21.5	18.5	12
074 (7)	26	W. Stryker I. (Louise Ch.)	17/03/83	1323	24							1	4	10	16	12	7					50	21.6	18.5	2
074 (7)	27	W. Stryker I. (Agnew I.)	17/03/83	1600	25					1		1	2	7	13	19	6	1				50	21.8	18.5	4
074 (7)	28	Stryker Bay	18/03/83	0620	26					1		2	5	11	19	8	4					50	21.2	18.5	4

Table 12 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 and 7, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
074 (7)	29	W. Stryker I. (Louise Ch.)	18/03/83	0710						Water haul												-	-	-	- (7)
074 (7)	30	W. Stryker I. (Louise Ch.)	18/03/83	0730						5	4	11	2	6	6	12	3	1				50	20.2	18.5	24
074 (7)	31	W. Stryker I. (Agnew I.)	18/03/83	1810						Water haul												-	-	-	-
074 (7)	32	W. Stryker I. (Louise Ch.)	18/03/83	2010	27					1		4	3	9	13	15	5					50	21.4	18.5	4
072 (7)	33	Ivory I. (Powell Anch.)	19/03/83	1120	28							1	5	5	11	21	6	1				50	21.9	18.5	0
072 (7)	34	Ivory I. (Reid Pass.)	19/03/83	1440	29					1			3	6	18	18	3	1				50	21.7	18.5	2
071 (7)	35	Lame Pass (McLoughlin B.)	20/03/83	1745	30					2	3	3	7	18	10	4	1			1		49	20.0	18.5	10
074 (7)	36	Thompson Bay	21/03/83	0900	31					1	1		3	7	18	12	8					50	21.6	18.5	4

Table 13. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "INTREPID I", STAT. AREAS 6-8, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
085 (8)	1	Kwakshua Ch.	06/03/83	1115	3000	500	200	7.6	1	62	57	46	43	0	0	0	0	46		
									2	57	51	54	49	0	0	0	0	54		
									3	57	53	51	47	0	0	0	1	50		
074 (7)	2	Thompson Bay	08/03/83	1925	3000-4000	1000	150-200	8.0	1	43	56	34	44	0	0	0	0	34		
									2	34	49	35	51	0	0	0	1	34		
									3	41	53	37	47	0	0	0	1	36		
074 (7)	3	Stryker Bay	09/03/83	0945	2000	200-300	50-60	7.9	1	21	28	55	72	1.5	1.04	7	3	45		
									2	43	52	39	48	1.5	1.58	5	1	33		
									3	35	45	42	55	0.5	0.46	2	4	36		
074 (7)	4	Boddy Narrows	09/03/83	1400	3000	400-600	0		Water haul											
074 (7)	5	Boddy Narrows	09/03/83	1930	2500-3000	400	300	7.8	1	34	44	43	56	0.5	0.45	2	0	41		
									2	34	42	47	58	0.5	0.43	3	0	44		
									3	38	49	40	51	0	0	0	2	38		
074 (7)	6	Thompson Bay	10/03/83	1925	1500-2000	700	300-400	8.1	1	31	38	51	62	0	0	1	5	45		
									2	39	48	42	52	0	0	2	3	37		
									3	52	68	34	32	0	0	1	2	31		
074 (7)	7	Little Thompson Bay	11/03/83	0800	1000-1500	1000	300-400	8.0	1	30	39	46	61	3.5	2.89	11	5	30		
									2	35	41	50	59	2.5	2.13	8	3	39		
									3	33	41	47	59	3.0	2.55	10	4	33		
074 (7)	8	Stryker Bay, Alleyne I.	11/03/83	1700		150	100	8.2	1	36	38	59	62	3.0	2.42	11	12	36		
									2	33	35	61	65	3.0	2.31	11	6	44		
									3	43	46	50	54	3.5	3.25	12	11	27		
074 (7)	9	Boddy Nar., Clarie I.	12/03/83	0730		400	0		Water haul											
074 (7)	10	Boddy Nar., Clarie I.	12/03/83	0930	400-500	300-400	0	7.9	Water haul											

Table 13 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "INTREPID I", STAT. AREAS 6-8, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %				Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	Wt.	Adj. wt.	#1	#2	#3		
										No.	%	No.	%									
074 (7)	11	Boddy Nar., Clarie I.	12/03/83	1030			0	7.9		Water haul												
074 (7)	12	Little Thompson Bay	12/03/83	1525		300	150	8.1	1	36	39	57	61	7.0	5.71			26	3	28		
									2	55	58	40	42	3.5	4.16			14	4	22		
									3	40	42	55	58	7.0	6.04			26	8	21		
074 (7)	13	Thompson Bay, E. Houghton I.	12/03/83	1800		200	150	8.1	1	44	47	50	53	2.0	1.88			7	10	33		
									2	41	44	52	56	2.0	1.79			9	9	34		
									3	47	47	52	53	2.0	1.90			8	8	36		
074 (7)	14	Thompson Bay, W. Waskesu	13/03/83	1930	2000+	300	150-200	8.1	1	53	58	38	42	5.0	5.98			16	6	16		
									2	59	61	37	39	5.5	7.14			19	7	11		
									3	51	55	41	45	7.0	7.85			23	7	11		
									4	57	59	39	41	6.0	7.39			23	4	12		
074 (7)	15	Thompson Bay, E. Houghton I.	14/03/83	0750		200	60		1	50	54	43	46	6.5	7.03			23	8	12		
									2	38	41	54	59	7.0	5.96			26	11	17		
									3	46	48	49	52	8.0	7.75			27	9	13		
074 (7)	16	Thompson Bay, E. Houghton I.	14/03/83	1015	5000	200	0	8.1		Water haul												
074 (7)	17	Thompson Bay, E. Houghton I.	14/03/83	1800			400-500	8.1	1	30	33	61	67	9.5	7.09			33	5	23		
									2	37	41	53	59	11.0	9.34			38	5	10		
									3	39	41	55	59	10.0	8.55			34	2	19		
									4	36	38	59	62	11.5	9.26			41	3	15		
									5	32	48	35	52			10.8	10.34	26	1	8		
									6	37	52	34	48			10.4	10.86	24	1	9		
									7	27	41	39	59			11.4	9.64	28	3	8		

Table 13 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "INTREPID I", STAT. AREAS 6-8, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
										No.	%	No.	%							
074 (7)	18	Thompson Bay, E. Houghton I.	15/03/83	0810		2000	100	8.0	1	36	38	59	62	12.0	9.66	44	5	10		
									2	41	42	56	58	11.8	10.23	41	5	10		
									3	40	40	60	60	14.0	11.67	48	3	9		
									4	39	39	60	61	13.0	10.73	43	5	12		
									5	38	41	55	59	11.0	9.31	38	5	12		
									6	49	48	53	52	11.0	10.57	42	3	8		
067 (6)	19	W. Higgins Pass.	16/03/83	1910	3000-3500	200	100	8.3	1	41	42	56	58	14.0	12.13	49	3	4		
									2	48	48	51	52	12.0	11.65	43	2	6		
									3	51	52	47	48	13.5	14.06	43	0	4		
067 (6)	20	W. Higgins Pass.	17/03/83	0745	3500+	500	200-300	8.3	1	57	56	45	44	11.0	12.47	40	3	2		
									2	51	51	49	49	11.0	11.22	42	2	5		
									3	47	47	52	53	13.0	12.38	48	3	1		
067 (6)	21	Kitasu Bay	18/03/83	0925			0	8.2		Water haul										
071 (7)	22	Spiller Ch., Shingle Rk.	22/03/83	2015	Skimmer		Juvenile herring													

Information on fishery (Table 11).

Table 14. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "INTREPID I", STAT. AREAS 6-8, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
085 (8)	1	Kwakshua Ch.	06/03/83	1115	1					4	5	4	12	7	16	3						51	19.9	18.5	20
074 (7)	2	Thompson Bay	08/03/83	1925	2							1	3	5	13	16	12					50	22.0	18.5	0
074 (7)	3	Stryker Bay	09/03/83	0945	3						1	2	2	8	15	18	5	3				54	21.8	18.5	6
074 (7)	4	Boddy Narrows	09/03/83	1400	-					Water haul												-	-	-	-
074 (7)	5	Boddy Narrows	09/03/83	1930	4						2	3	3	8	16	13	7					52	21.4	18.5	6
074 (7)	6	Thompson Bay	10/03/83	1925	5						1		7	4	22	12	3					49	21.9	18.5	2
074 (7)	7	Little Thompson Bay	11/03/83	0800	6							2		9	23	16	3					53	21.6	18.5	0
074 (7)	8	Stryker Bay, Alleyne I.	11/03/83	1700	7					1	4	2	1	13	18	6	6					51	21.0	18.5	12
074 (7)	9	Boddy Nar., Clarie I.	12/03/83	0730	-					Water haul												-	-	-	-
074 (7)	10	Boddy Nar., Clarie I.	12/03/83	0930	-					Water haul												-	-	-	-
074 (7)	11	Boddy Nar., Clarie I.	12/03/83	1030	-					Water haul												-	-	-	-
074 (7)	12	Little Thompson Bay	12/03/83	1525	8									7	15	19	8					49	22.1	18.5	0
074 (7)	13	Thompson Bay, E. Houghton I.	12/03/83	1800	9							1	2	6	20	19	3					51	21.7	18.5	2
074 (7)	14	Thompson Bay, W. Waskesu	13/03/83	1930	10						1	1	3	2	19	21	3					50	21.7	18.5	2

Table 14 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "INTREPID I", STAT. AREAS 6-8, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
074 (7)	15	Thompson Bay, E. Houghton I.	14/03/83	0750	11								4	7	21	15	3					50	21.6	18.5	0
074 (7)	16	Thompson Bay, E. Houghton I.	14/03/83	1015	-			Water haul														-	-	-	-
074 (7)	17	Thompson Bay, E. Houghton I.	14/03/83	1800	12							1	3	5	23	14	2	2				50	21.7	18.5	0
074 (7)	18	Thompson Bay, E. Houghton I.	15/03/83	0810	13					1			5	9	15	12	8					50	21.6	18.5	2
067 (6)	19	W. Higgins Pass.	16/03/83	1910	14								3	9	18	15	5	1				51	21.8	18.5	0
067 (6)	20	W. Higgins Pass.	17/03/83	0745	15						1		3	15	22	8	6		1			56	21.5	18.5	2
067 (6)	21	Kitasu Bay	18/03/83	0925	-			Water haul														-	-	-	-
071 (7)	22	Spiller Ch., Shingle Rk.	22/03/83	2015	16			2	4	7	13	13	6	3	3	1						52	18.1	18.5	64

Table 15. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "WESTVIEW NO. I", STAT. AREAS 13-17, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
					In loc.	Set on	Est. catch			M		F		Wt.	Adj. wt.	#1	#2	#3		
										No.	%	No.	%							
152 (15)	1	Lund	23/02/83	0730	2000-3000	150	40	7.9	1	30	33	61	67	0	0	0	0	61		
152 (15)	2	Powell River	24/02/83	0745	3000	200	40	7.7	1	40	40	61	60	0	0	0	0	61		
162 (16)	3	Myrtle Creek	24/02/83	1330	500	300	30	8.4	1	32	39	50	61	0	0	0	1	49		
162 (16)	4	Grief Pt.	25/02/83	0700		60	0	7.1	-	Water haul										
152 (15)	5	Powell River	25/02/83	1040			0	7.3	-	Water haul										
152 (15)	6	Lund	25/02/83	1315	3000		7	7.8	1	56	57	42	43	0	0	0	0	42		
162 (16)	7	Grief Pt.	26/02/83	0600	400+	70	5	7.6	1	45	58	32	42	3.0	3.61	16	4	12	Few running males	
									2	44	56	34	44	3.0	3.44	13	7	14		
152 (15)	8	1 mi E. of Powell River	26/02/83	0720	400	80	0	7.6	-	Water haul										
162 (16)	9	1/2 way between Powell River & Westview	26/02/83	0810	400	100	30	7.6	1	37	45	46	55	1.0	0.90	4	6	36		
									2	41	49	43	51	0.8	0.78	2	2	39		
152 (15)	10	Bluff E. of Lund	26/02/83	1300	3500	500	2	8.0	1	37	39	57	61	1.6	1.32	8	2	47		
									2	42	44	54	56	1.8	1.60	8	4	42		
152 (15)	11	Hurtado Pt.	27/02/83	0745	7000+	200	5	7.75	1	19	20	74	80	0.3	0.19	2	0	72		
152 (15)	12	Lund	27/02/83	0930	7000	3000	40-50	7.8	1	57	62	35	38	1.0	1.32	4	4	27		
									2	46	51	44	49	0.5	0.51	2	2	40		
152 (15)	13	Powell River	27/02/83	1635	3000	150	60	7.8	1	42	52	39	48	4.8	4.99	17	8	14		
									2	44	56	35	44	3.8	4.29	14	4	17		
									3	42	51	40	49	4.8	4.92	16	5	19		
143 (14)	14	1 mi N. of Bowser	01/03/83	0815	1000	5	5	7.85	1	41	68	19	32	6.5	10.25	17	0	2	16	
									2	30	54	26	46	9.5	10.24	21	2	3	13	
142 (14)	15	Chrome I.	01/03/83	1025		100	0	7.9	-	Water haul										

Table 15 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "WESTVIEW NO. 1", STAT. AREAS 13-17, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Wt.	Adj. wt.	#1	#2	#3		
										No.	%	No.	%							
162 (16)	16	Westview	02/03/83	0835	2000	400	70	7.6	1	24	28	61	72	5.8	4.04	24	10	27		
									2	43	45	53	55	4.6	4.17	19	9	25		
									3	35	39	55	61	5.6	4.58	20	5	30		
152 (15)	17	Sliammon	02/03/83	1150	400-500	100	50	7.65	1	47	54	40	46	5.4	5.87	23	6	11		
									2	43	50	43	50	6.6	6.60	26	6	11		
									3	42	50	42	50	5.0	5.00	23	4	15		
152 (15)	18	1/2 mi W. of Sliammon	02/03/83	1545		100	0		-	Water haul										
152 (15)	19	1/2 mi W. of Powell River	03/03/83	0615	4000	70-100	5	7.7	1	40	46	47	54	8.0	7.41	31	2	14		
									2	38	45	47	55	7.5	6.78	29	5	13	1	
									3	43	50	43	50	8.0	8.00	30	3	10		
152 (15)	20	Powell River	03/03/83	0840	4000	150	50	7.7	1	42	44	53	56	7.8	6.99	29	4	20	1	
									2	45	47	50	53	7.0	6.65	30	5	15		
									3	52	57	40	43	5.5	6.32	23	1	16		
152 (15)	21	Sliammon	03/03/83	1105	500	100	0	8.0	-	Water haul										
152 (15)	22	Powell River	03/03/83	1320		100	3-4	7.9	1	40	42	55	58	4.4	3.80	21	5	29	1	
									2	52	47	59	53	5.0	4.70	24	5	30	1	
									3	35	38	57	62	8.8	7.10	34	4	19		
152 (15)	23	Powell River	04/03/83	0630	3000-4000	150	50	7.3	1	44	51	43	49	8.?	8.30	26	3	14		
									2	40	47	46	53	9.5	8.88	31	3	12		
									3	47	56	37	44	8.8	10.00	24	1	12		
152 (15)	24	1 mi SE. of Sliammon	04/03/83	0745		150	70	7.9	1	40	49	42	51	11.2	10.94	34	1	7		
									2	45	56	35	44	10.2	11.64	35	0	0		
									3	41	51	40	49	10.8	10.93	36	1	3		
162 (16)	25	Westview	04/03/83	1045	4000+	300-400	100+	8.0	1	50	48	55	52	6.2	5.92	28	2	25		
									2	44	45	53	55	7.2	6.59	31	4	18		
									3	39	40	58	60	6.6	5.52	28	2	28		
152 (15)	26	Powell River (E. of Breakwater @ Mill)	04/03/83	1320	3000-4000	200	0	8.1	-	Water haul										

Table 15 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "WESTVIEW NO. I", STAT. AREAS 13-17, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio M No.	M %	F No.	F %	Roe Yield % Vol.	Adj. vol.	Wt.	Adj. wt.	Roe Grade (Pcs) #1	#2	#3	Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch															
152 (15)	27	Powell River off Hulks	04/03/83	1420	4000+	200	25-50	8.1	1	45	48	49	52			6.4	6.14	22	4	23		
									2	46	49	47	51			7.0	6.93	30	6	11	1	
									3	50	53	45	47			7.2	7.59	29	2	14		
152 (15)	28	Powell River, W. of River Inside Boundary	04/03/83	1555		100+	30	8.1	1	46	45	56	55			6.0	5.46	27	3	26		
									2	46	46	53	54			7.0	6.54	30	6	17	1	
									3	49	49	50	51			3.2	3.17	20	5	25	1	
152 (15)	29	Powell River	05/03/83	0600		70-100	15-20	7.5	1	30	32	63	68			3.2	2.36	14	3	46	2	
									2	44	47	50	53			2.4	2.26	14	2	34	2	
152 (15)	30	Sliammon	06/03/83	0845	2000+	200	3	6.1	1	41	41	58	59			8.4	7.17	36	8	14		
									2	52	51	50	49			6.2	6.33	33	7	10		
152 (15)	31	Sliammon	06/03/83	1815		100	0.5		1	47	53	41	47			9.3	9.98	35	1	5		
									2	49	59	34	41			9.4	11.46	32	2	0		
									3	42	50	42	50			10.4	10.40	38	1	3	1	
152 (15)	32	Sliammon	07/03/83	0715	3000+	150	70	7.85	1	45	47	51	53			7.0	6.59	26	3	22	2	
									2	41	42	56	58			8.0	6.93	29	2	25	1	
									3	41	46	48	54			8.5	7.88	28	2	18	2	
152 (15)	33	Sliammon (1 mi SE.)	07/03/83	1050	2000	200	0		-	Water haul												
152 (15)	34	West of Sliammon	07/03/83	1302	2000	100	0		-	Water haul												
162 (16)	35	1/4 mi E. of Westview	08/03/83	0800	10,000+	600-800	100	8.2	1	50	46	58	54	8.4	7.82			39	3	16		
									2	51	50	50	50	8.7	8.79			41	0	9		
									3	56	52	52	48	8.2	8.52			35	4	13	2	
152 (15)	36	1/2 mi NW. of Mill	09/03/83	1300	3000+	100	50	7.9	1	32	33	66	67	2.4	1.78			13	0	55	21	
152 (15)	37	1/2 mi W. of Dinner Rock	09/03/83	1700	1000	150	0	7.7	-	Water haul												
162 (16)	38	Off Westview Docks	04/03/83	unknown				-	1	40	39	63	61			7.0	5.72	32	3	28		
152 (15)	39	1 mi W. of Dinner Rock	09/03/83	1750	1000	150	5	7.7	-	No information												

Table 15 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "WESTVIEW NO. 1", STAT. AREAS 13-17, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage: In loc.	Tonnage: Set on	Tonnage: Est. catch	Temp (°C)	Test No.	Sex Ratio: M No.	Sex Ratio: M %	Sex Ratio: F No.	Sex Ratio: F %	Roe Yield %: Vol.	Roe Yield %: Adj. vol.	Roe Yield %: Wt.	Roe Yield %: Adj. wt.	Roe Grade (Pcs): #1	Roe Grade (Pcs): #2	Roe Grade (Pcs): #3	Spnd. out	Juv. or immat.
152 (15)	40	Thulin Passage	10/03/83	0802	300+	100	0	-	-	Water haul												
152 (15)	41	NW. top end Harwood	10/03/83	1052		150	2	8.2	1	40	47	46	53			8.2	7.66	34	1	11	2	
									2	47	55	39	45			5.8	6.40	27	3	9	3	
									3	46	53	41	47			6.0	6.37	26	4	11	5	
152 (15)	42	NW. tip of Harwood	10/03/83	1202		100	0	8.2	-	Water haul												
173 (17)	43	Fraser Pt., Thetis I.	12/03/83	0550		100	50	8.7	1	49	61	31	39	8.8	11.34			30	0	1	19	
									2	36	51	35	49	10.3	10.45			35	0	0	12	
173 (17)	44[a]	Miami Islets	12/03/83	1315	200	150	100	8.6	1	41	49	43	51	11.0	10.74			41	2	0	4	
152 (15)	45	Off Hulks MB Mill	16/03/83	1450	1000+	100	100	8.8	-	All spawned out												
152 (15)	46	Lund	17/03/83	0525	1000	100	100	8.7	-	All spawned out												

Seine Opening

A portion of management sub-area 14 - 11 opened on February 27 for 6 hours and 55 minutes for a hailed catch of 1,600 tons tested at 12% roe maturity.

Management sub-area 15 - 2 (vicinity of Powell River Mill) opened on March 4 for 5 hours and 33 minutes for a hailed catch of 900 tons, and on March 5 for 1 hour and 40 minutes for a hailed catch of 2,300 tons tested at 9.5 % or better roe maturity.

Management sub-area 17 - 7 (Nanoose Bay) opened on March 2 for 6 hours for a hailed catch of 1,800 tons, tested at 11% roe maturity.

Gillnet Opening

Management sub-areas 14 - 7 and 14 - 10 opened from February 27 to March 1 for 44 hours for a hailed catch of 8,833 tons.

[a] Charter payment herring.

Table 16. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "WESTVIEW NO. I", STAT. AREAS 13-17, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
152 (15)	1	Lund	23/02/83	0730	1						2	8	14	18	7	1						50	20.0	19.5	32
152 (15)	2	Powell River	24/02/83	0745	2						2	12	10	11	10	4	1					50	20.1	19.5	44
162 (16)	3	Myrtle Creek	24/02/83	1330	3								9	12	16	11	2					50	21.2	19.5	10
162 (16)	4	Grief Pt.	25/02/83	0700	-				Water haul													-	-	-	-
152 (15)	5	Powell River	25/02/83	1040	-				Water haul													-	-	-	-
152 (15)	6	Lund	25/02/83	1315	4				1	1	6	8	9	14	7	3	0	1				50	19.8	19.0	32
162 (16)	7	Grief Pt.	26/02/83	1600	5							11	13	15	7	3	1					50	20.1	19.0	22
152 (15)	8	1 mi E. of Powell River	26/02/83	0720	-				Water haul													-	-	-	-
162 (16)	9	1/2 way between Powell River & Westview	26/02/83	0810	6				1	0	0	6	12	16	10	5						50	20.3	19.0	14
152 (15)	10	Bluff E. of Lund	26/02/83	1300	7						6	6	15	11	9	3						50	19.9	19.0	24
152 (15)	11	Hurtado Pt.	27/02/83	0745	8						2	10	14	9	10	4	1					50	20.1	19.0	24
152 (15)	12	Lund	27/02/83	0930	9					1	3	9	7	17	8	2	2					49	20.1	19.0	27
152 (15)	13	Powell River	27/02/83	1635	10							1	8	15	16	9	1					50	21.0	19.0	2
143 (14)	14	1 mi N. of Bowser	01/03/83	0815	11							3	7	10	14	11	4	1	1			51	21.4	19.0	6

Table 16 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "WESTVIEW NO. I", STAT. AREAS 13-17, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
142 (14)	15	Chrome I.	01/03/83	1025	-				Water haul													-	-	-	- (14)
162 (16)	16	Westview	02/03/83	0835	12				1	1	2	13	15	10	7	1						50	19.6	19.0	34
152 (15)	17	Sliammon	02/03/83	1150	13							6	15	14	11	3	1					50	20.4	19.0	12
152 (15)	18	1/2 mi W. of Sliammon	02/03/83	1545	-				Water haul													-	-	-	-
152 (15)	19	1/2 mi W. of Powell River	03/03/83	0615	14						2	3	7	18	14	6						50	20.6	19.0	10
152 (15)	20	Powell River	03/03/83	0840	15						3	13	15	8	9	2						50	19.8	19.0	32
152 (15)	21	Sliammon	03/03/83	1105	-				Water haul													-	-	-	-
152 (15)	22	Powell River	03/03/83	1320	16						5	15	10	8	8	3	1					50	19.7	19.0	40
152 (15)	23	Powell River	04/03/83	0630	17					1	2	6	5	11	20	2	1	1	1			50	20.7	19.0	18
152 (16)	24	1 mi. SE. of Sliammon	04/03/83	0745	18					1	1	7	8	9	15	8	2					51	20.7	19.0	18
162 (16)	25	Westview	04/03/83	1045	19						1	16	18	8	7							50	19.6	19.0	32
152 (15)	26	Powell River (E. of Breakwater @ Mill)	04/03/83	1320	-				Water haul													-	-	-	-
152 (15)	27	Powell River off Hulks	04/03/83	1420	20						2	8	15	12	13							50	20.0	19.0	20
152 (15)	28	Powell River, W. of River Inside Boundary	04/03/83	1555	21					1	3	16	13	7	9	1						50	19.6	19.0	40

Table 16 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "WESTVIEW NO. 1", STAT. AREAS 13-17, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
152 (15)	29	Powell River	05/03/83	0600	22						2	13	15	13	5	2						50	19.7	19.0	30
152 (15)	30	Sliammon	06/03/83	0845	23	No information																50	19.3	19.0	38
152 (15)	31	Sliammon	06/03/83	1815	24							4	6	17	18	4	1					50	20.8	19.0	8
152 (15)	32	Sliammon	07/03/83	0715	25					2	2	9	14	11	10	2						50	19.9	19.0	26
152 (15)	33	Sliammon (1 mi SE.)	07/03/83	1050	-	Water haul																-	-	-	-
152 (15)	34	West of Sliammon	07/03/83	1302	-	Water haul																-	-	-	-
162 (16)	35	1/4 mi E. of Westview	08/03/83	0800	26					3	6	11	13	11	2	3	0	1				50	19.4	19.0	40
152 (15)	36	1/2 mi NW. of Mill	09/03/83	1300	27				2	0	7	15	17	4	4	1						50	19.1	19.0	48
152 (15)	37	1/2 mi W. of Dinner Rock	09/03/83	1700	-	Water haul																-	-	-	-
162 (16)	38	Off Westview Docks	04/03/83	-	-					1	2	12	14	12	8	1						50	19.7	19.0	30
152 (15)	39	1 mi W. of Dinner Rock	09/03/83	1730	-	No information																-	-	-	-
152 (15)	40	Thulin Passage	10/03/83	0802	-	Water haul																-	-	-	-
152 (15)	41	NW. top end Harwood	10/03/83	1052	28							3	12	15	16	4						50	20.6	19.0	6
152 (15)	42	NW. tip of Harwood	10/03/83	1202	-	Water haul																-	-	-	-

Table 16 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "WESTVIEW NO. 1", STAT. AREAS 13-17, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
173 (17)	43	Fraser Pt., Thetis I.	12/03/83	0550	29				2	3	8	3	7	5	13	5	4					50	20.0	19.0	32
173 (17)	44	Miami Islets	12/03/83	1315	30					1	2	4	9	10	11	9	3	1				50	20.8	19.0	14
152 (15)	45	Off Hulks MB Mill	16/03/83	1450	-	All spawned out																-	-	-	-
152 (15)	46	Lund	17/03/83	0525	-	All spawned out																-	-	-	-

Table 17. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "PACIFIC QUEST", STAT. AREAS 12-17, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage: In loc.	Tonnage: Set on	Tonnage: Est. catch	Temp (°C)	Test No.	Sex Ratio: M No.	Sex Ratio: M %	Sex Ratio: F No.	Sex Ratio: F %	Roe Yield %: Vol.	Roe Yield %: Adj. vol.	Roe Yield %: Wt.	Roe Yield %: Adj. wt.	Roe Grade (Pcs): #1	Roe Grade (Pcs): #2	Roe Grade (Pcs): #3	Spnd. out	Juv. or Immat.
142 (14)	1	Deep Bay Hole	23/02/83	0500	1000-1500	600-700	150	6.2	1	40	40	61	60			0	0	0	5	56		
									2	42	53	38	47			0	0	0	5	33		
142 (14)	2	Deep Bay	25/02/83	1845	1000-1500	1000 1500	125	6.0	1	22	29	55	71			4.4	3.08	16	5	34		
									2	36	48	39	52			3.1	2.98	11	11	17		
142 (14)	3	Sandy I. (inside Baynes Sd.)	26/02/83	0930		200	50		1	34	32	73	68	8.0	5.87			39	2	32		3
									2	28	33	58	67			8.8	6.53	31	5	22		
142 (14)	4	Comox Harbour (btwn. Goose Spit & Gartlan Pt.)	27/02/83	0540		300	20	6.3	1	38	51	37	49			9.8	9.94	30	2	5	Gonads	
									2	42	53	37	47			9.05	9.67	29	3	5	running	
									3	34	47	39	53			10.75	10.07	31	4	4		2
142 (14)	5	Sandy I.	27/02/83	0950	3000-4000	75	25	6.3	1	24	32	52	68			9.2	6.73	28	5	19		1
									2	35	41	51	59			8.47	7.14	28	2	21		
									3	36	44	46	56			8.1	7.22	23	5	18		2
									4	53	40	81	60	9.0	7.45							
142 (14)	6	Lambert Channel & Chrome I.	28/02/83	1500			10	6.2	1	32	35	60	65			2.75	2.11	9	11	40		9
									2	45	45	54	55			1.10	1.01	7	7	40		7
142 (14)	7	Chrome I.	28/02/83	1615			75	6.2	1	33	34	63	66	11.0	8.38			43	3	17		12
									2	26	37	45	63			10.0	7.89	30	2	13		7
									3	32	46	37	54			8.5	7.93	26	4	7		6
142 (14)	8	Lambert Channel (Gravelly Bay)	28/02/83	1730	3000-4000	15	200		1	45	38	72	62	12.0	9.76			57	3	12		
									2	31	42	42	58			7.75	6.74	24	2	16		3
									3	35	50	35	50			7.9	7.90	27	1	7		4
									4	48	42	66	58	8.0	6.91			39	8	19		6
142 (14)	9	Lambert Channel (off Ford Cove)	01/03/83	0620		skim	15	6.3	1	48	44	60	56	8.0	7.19			38	4	18		16
									2	36	46	43	54			6.2	5.70	19	2	12		11
172 (17)	10	Nanoose (Deep Hole)	01/03/83	1450			10	6.5	1	45	54	39	46			5.2	5.60	17	4	18		2
									2	54	53	47	47			5.5	5.91	24	3	20		8
172 (17)	11	Nanoose Bay	01/03/83	1525			0															
										Water haul												
172 (17)	12	Nanoose	02/03/83	0705		150	40	6.4	1	38	47	43	53			11.95	11.25	39	0	4		2
									2	47	57	35	43			8.8	10.30	31	1	3		2
									3	30	35	55	65			13.45	10.39	48	2	5		

Table 17 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "PACIFIC QUEST", STAT. AREAS 12-17, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %				Roe Grade (Pcs)				Juv. or Immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	Wt.	Adj. wt.	#1	#2	#3	Spnd. out	
										No.	%	No.	%									
144 (14)	13	NW. Bay	02/03/83	1150			0.1	6.4	1	42	71	17	29	7.0	12.15			16	0	1	1	
144 (14)	14	NW. Bay, Cottam Pt.	02/03/83	1310		200	75-100	6.4	1	24	59	17	41	5.4	6.51			14	1	2	34	
142 (15)	15	Deep Hole	03/03/83	0530		(skimmer)	10	6.3	1	35	43	46	57	0	0			1	9	36	58	
162 (16)	16	Between Grief Pt. & Westview	03/03/83	1230		50-75	0	6.5		Water haul												
162 (16)	17	1/4 mi NE. of Grief Pt.	03/03/83	1545		30	0	6.6		Water haul												
162 (16)	18	1/2 mi off Hulks Breakwater	04/03/83	0555			10-15	6.2	1	45	50	45	50	8.9	8.90			39	1	5	1	
									2	34	39	53	61	8.6	6.57			32	4	17		
									3	36	40	54	60	8.7	7.25			38	1	15		
162 (16)	19	Off Breakwater (Hulks)	05/03/83	0550	15-7fm	skim	75	6.3	1	51	53	45	47	6	6.40			30	0	15		
									2	49	46	57	54	7.2	6.69			42	0	15		
									3	43	46	51	54	7	6.44			34	0	17		
162 (16)	20	Stillwater Bay	09/03/83	0810	50	30	0.1		1	43	40	64	60	8.3	6.94			48	1	15		
162 (16)	21	Lang Bay	09/03/83	0910	50		5	7.2	1	53	51	51	49	4.5	4.59			29	3	19	2	
									2	52	50	53	50	6.2	6.14			36	0	17	3	
									3	49	47	55	53	6.6	6.24			35	2	18	1	
144 (14)	22	Northwest Bay	10/03/83	0940	75	75	20	6.8	1	45	62	28	38	8.9	11.59			27	1	0	5	
									2	40	56	32	44	7.8	8.78			32	0	0	15	
									3	27	38	44	62	11.2	9.03			42	0	2	13	
									4	33	46	38	54	9.6	8.97			38	0	0	14	
173 (17)	23	Miami I.	12/03/83	0625			100 lb		1	48	67	24	33	6.9	10.36			24	0	0	26	
173 (17)	24	Miami I.	12/03/83	0850		30-40	5		1	46	57	35	43	8.5	9.84			35	0	0	20	
173 (17)	25	North Cove	12/03/83	1050			0			Water haul												

Table 17. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "PACIFIC OCEAN", STAT. AREAS 12-17, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage: In loc.	Tonnage: Set on	Tonnage: Est. catch	Temp (°C)	Test No.	Sex Ratio: M No.	Sex Ratio: M %	Sex Ratio: F No.	Sex Ratio: F %	Roe Yield %: Vol.	Roe Yield %: Adj. vol.	Roe Yield %: Wt.	Roe Yield %: Adj. wt.	Roe Grade (Pcs): #1	Roe Grade (Pcs): #2	Roe Grade (Pcs): #3	Spnd. out	Juv. or immat.
173 (17)	26[a]	Pilkey Pt.	12/03/83	1305		250	115		1	34	40	51	60			13.2	11.00	50	0	1	5	
									2	39	47	44	53			11.4	10.75	41	1	2	3	
									3	45	56	35	44			8.4	9.59	32	2	1	11	
									4	37	46	44	54			9.86	9.08	40	3	1	7	
								mid pumping	5	67	56	53	44	10.0	11.31			50	2	1	6	
								end pumping	6	42	51	41	49			8.9	9.01	38	0	3	7	
									7	30	36	53	64			11.7	9.15	49	3	1	14	
126 (12)	27	Wakeman Sd.	15/03/83	1230	200-300	100	0			Water haul												
126 (12)	28	Moore Bay	15/03/83	1610	150	100	0	Juveniles														
123 (12)	29	Clio Channel, Bennett Pt.	17/03/83	0515	V. light	skim	2-3	6.3	1	29	45	36	55			3.0	2.71	10	6	20	4	
132 (13)	30	Deepwater Bay	18/03/83	0550	V. light	skim	2-3	6.9		No information												
142 (14)	31	Lambert Channel	18/03/83	2000	600-800	skim	10	7.3		All fish spawned out												

Fishery information (Table 15).
[a] Charter payment herring.

Table 18. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "PACIFIC QUEST", STAT. AREAS 12-17, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
142 (14)	1	Deep Bay Hole	23/02/83	0500	1						1	3	1	14	16	10	5					50	21.3	19.0	8
142 (14)	2	Deep Bay	25/02/83	1845	2				1		4	3	4	12	12	11	2	1				50	20.8	19.0	16
142 (14)	3	Sandy I. (inside Baynes Sd.)	26/02/83	0930	3				1	2	4	9	15	6	7	4	1	1				50	19.8	19.0	32
142 (14)	4	Comox Harbour (Btwn. Goose Spit & Gartlen Pt.)	27/02/83	0540	4								10	4	12	16	6	2				50	21.7	19.0	0
142 (14)	5	Sandy I.	27/02/83	0950	5				1	1	3	2	5	8	15	8	6	1				50	21.0	19.0	14
142 (14)	6	Lambert Channel & Chrome I.	28/02/83	1500	6					3	3	6	12	8	11	4	2	1				50	20.2	19.0	24
142 (14)	7	Chrome I.	28/02/83	1615	7							5	11	12	13	8	3					52	20.8	19.0	10
142 (14)	8	Lambert Channel (Gravelly Bay)	28/02/83	1730	8					1	1	2	3	13	15	10	4		1			50	21.3	19.0	8
142 (14)	9	Lambert Channel (off Ford Cove)	01/03/83	0620	9					2	2	5	8	12	13	7	2					51	20.5	19.0	18
172 (17)	10	Nanoose (Deep Hole)	01/03/83	1450	10			2	4	7	4	4	5	5	7	7	4	1				50	19.5	19.0	42
172 (17)	11	Nanoose Bay	01/03/83	1525	-			Water haul														-	-	-	-
172 (17)	12	Nanoose	02/03/83	0705	11						4		7	17	11	10		1				50	20.8	19.0	8
144 (14)	13	NW. Bay	02/03/83	1150	12									1	13	16	16	4	1			51	22.7	19.0	0
144 (14)	14	NW. Bay, Cottam Pt.	02/03/83	1310	13						1	1	5	14	13	11	5	1				51	21.4	19.0	4

Table 18 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "PACIFIC QUEST", STAT. AREAS 12-17, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
142 (14)	15	Deep Hole	03/03/83	0530	14				4	11	15	10	6	1	2			1				50	17.9	19.0	80
162 (16)	16	Between Grief Pt. & Westview	03/03/83	1250	-	Water haul																-	-	-	-
162 (16)	17	1/4 mi NE. of Grief Pt.	03/03/83	1545	-	Water haul																-	-	-	-
162 (16)	18	1/2 mi off Hulks Breakwater	04/03/83	0555	15						2	5	11	19	9	3	1					50	20.3	19.0	14
162 (16)	19	Off Breakwater (Hulks)	05/03/83	0550	16					2	2	12	9	14	10	2	1					54	19.9	19.0	32
162 (16)	20	Stillwater Bay	09/03/83	0810	17				3	4	4	12	8	13	8	2	1					55	19.4	19.0	42
162 (16)	21	Lang Bay	09/03/83	0910	18				2	1	3	14	20	10								50	19.1	19.0	40
144 (14)	22	Northwest Bay	10/03/83	0940	19						3	8	9	15	7	5	3					50	20.3	19.0	22
173 (17)	23	Miami I.	12/03/83	0625	-	No information																			
173 (17)	24	Miami I.	12/03/83	0850	19	No information																			
173 (17)	25	North Cove	12/03/83	1050	-	Water haul																			
173 (17)	26	Pilkey Pt.	12/03/83	1305	20	No information																			
126 (12)	27	Wakeman Sd.	15/03/83	1230	-	Water haul																			

Table 18 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "PACIFIC QUEST", STAT. AREAS 12-17, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
126 (12)	28	Moore Bay	15/03/83	1610	-	Juveniles																-	-	-	-
123 (12)	29	Clio Channel, Bennett Pt.	17/03/83	0515	21						4	6	6	7	8	10	6	1	1			49	21.0	19.0	20
132 (13)	30	Deepwater Bay	18/03/83	0550	22	No information																-	-	-	-
142 (14)	31	Lambert Channel	18/03/83	2000	23	All fish spawned out																-	-	-	-

Table 19. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "PACIFIC OCEAN", STAT. AREAS 13-15, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Wt.	Adj. wt.	#1	#2	#3		
										No.	%	No.	%							
132 (13)	1	Deepwater Bay	15/02/83	1300		200	3		1	47	46	55	54	0	0	0	0	55		
152 (15)	2	Lund	16/02/83	1000	3000-4500	3000-4500	50	7.6	1	45	38	74	62	0	0	0	0	74		
142 (14)	3	Deep Bay	18/02/83	2100	700+	700+	100		1	48	45	58	55	0	0	0	0	58		
132 (13)	4	Deepwater Bay	26/02/83	1945	4000	4000	50	8.3	1	57	53	50	47	0	0	0	0	50		
142 (14)	5	Deep Bay	27/02/83	1930	1200	50	5	7.1	1	43	46	50	54	6.3	5.86	21	27	2		
									2	39	45	47	55	6.4	5.85	16	31	0		
152 (15)	6	Powell Mill	28/02/83	1030	3000+	300	200	7.4	1	39	44	50	56	2.6	2.31	12	11	27		
									2	40	44	50	56	3.6	3.24	13	9	28		
152 (15)	7	Lund	28/02/83	1500	5000+	200+	100	8.2	1	52	55	42	45	2.4	2.68	13	2	27		
									2	43	54	36	46	3.2	3.51	15	6	25		
152 (15)	8	Brlton I's.	28/02/83	1900		300	100	8.1	1	65	57	50	43	0		0	0	50		
136 (13)	9	Evans Bay	01/03/83	0530	1500 skimmer		100	7.7	1	56	54	47	46	0.5	0.55	3	3	41		
152 (15)	10	North of Atrevida Reef	01/03/83	1050		1100	0			Water haul										
152 (15)	11	Powell River Mill	01/03/83	1230		75	75	7.5	1	31	32	65	68	2.4	1.77	17	4	44		
									2	38	40	58	60	4.0	3.31	15	2	41		
									3	46	46	53	54	3.2	2.99	11	3	39		
152 (15)	12	Lund	01/03/83	1645		500	80	7.7	1	48	56	38	44	3.2	3.62	16	0	22		
									2	50	59	35	41	5.2	6.31	18	0	17		
									3	41	46	48	54	6.2	5.75	20	3	25		
152 (15)	13	Btwn. Lund & Thulin Pass	02/03/83	0645	3000+	500	100	7.0	1	45	51	44	49	5.2	5.26	21	1	22		
									2	43	51	41	49	6.2	6.35	22	0	19		
									3	51	58	37	42	5.8	6.90	19	2	16		

Table 19 (cont'd). Seine set data and roe yield information. HOE HERRING CHARTER SEINER "PACIFIC OCEAN", STAT. AREAS 13-15, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %				Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	Wt.	Adj. wt.	#1	#2	#3		
										No.	%	No.	%									
152 (15)	14	Lund	03/03/83	0730			0	-	-	(15)		Water haul										
152 (15)	15	Lund	03/03/83	0830		-	0	7.8	-	(15)		Water haul										
152 (15)	16	Lund	03/03/83	0900	2000	500	100	7.8	1	45	51	44	49			3.8	3.85	18	2	24		
									2	49	53	44	47			4.8	5.07	20	6	18		
									3	38	47	43	53			4.0	3.77	14	7	22	1	
152 (15)	17	Lund	03/03/83	1810		75	50	8.1	1	48	44	61	56			2.6	2.32	16	5	40		
									2	43	43	56	57			3.8	3.36	16	4	36		
									3	41	41	58	59			3.0	2.56	16	2	40		
152 (15)	18	Lund	04/03/83	0630				7.8	1	81	43	108	57			1.4	1.23	71	0	37		
152 (15)	19	Lund	04/03/83	0745	1500+	400	75	7.8	1	37	46	43	54			5.8	5.39	21	5	17		
									2	42	46	49	54			7.6	7.06	26	5	18		
									3	37	45	45	55			6.2	5.65	20	5	20		
152 (15)	20	Sllamon	05/03/83	0630		800-1000	60	7.2	1	42	48	45	52			9.6	9.28	41	0	4		
									2	48	58	35	42			8.6	10.19	28	0	7		
									3	41	59	42	51			11.4	11.26	39	0	3		
152 (15)	21	Sllamon Village	06/03/83	0700			1	-	1	34	28	87	72	6.5	4.52			41	9	37		
152 (15)	22	Sllamon Village	06/03/83	0800	1000		100	-	1	65	55	58	47	7.0	7.42			49	2	7		
									2	65	52	59	48	8.0	8.40			53	0	6		
									3	53	48	58	52	9.0	8.60			51	2	5		
									4	?		50		9.5	N/A			40	0	10		
									5	45	49	46	51	8.0	7.92			36	5	5		
152 (15)	23	Sllamon Village	07/03/83	0745		200	30	7.9	1	42	49	43	51			9.6	9.49	32	1	10		
									2	36	41	52	59			9.8	8.29	32	4	16	1	
									3	38	41	55	59			7.4	6.26	24	2	29	2	

Table 19 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "PACIFIC OCEAN", STAT. AREAS 13-15, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Dep. fe	Tonnage In loc.	Tonnage Set on	Tonnage Est. catch	Temp (°C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield % Vol.	Roe Yield % Adj. vol.	Roe Yield % Wt.	Roe Yield % Adj. wt.	Roe Grade (Pcs) #1	#2	#3	Spnd. out	Juv. or Immat.
152 (15)	24	Sllamon Village	07/03/83	1100				0.5		1	51	55	41	45			8.9	9.98	32	3	6	4	
									Sun Yip	2	51	50	50	50			9.0	9.09	38	2	10		
152 (15)	25	S. of Sllamon Village	07/03/83	1430	1000		200	40	8.2	1	38	39	60	61			6.1	4.98	28	3	29		
152 (15)	26	Mill area Powell River	09/03/83	0700			300	0	7.8		Water haul												
152 (15)	27	Sllamon	09/03/83	0845			100	15	8.1	1	48	46	56	54			4.1	3.81	21	3	32	13	
										2	52	44	66	56			3.7	3.31	18	2	46	7	
137 (13)	28	Herlot Bay	14/03/83	1300	3000-4000		400	50	8.3	1	57	55	47	45			8.3	9.18	40	0	7	6	
										2	90	53	79	47	6.5	6.96			61	4	14	4	
									Sun Yip Sample Method	3	55	52	50	48	No Information				41	2	7		

Fishery information (Table 15).

Table 20. Length frequency distribution of herring. RUE HERRING CHARTER SEINER "PACIFIC OCEAN", STAT. AREAS 13-15, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
132 (13)	1	Deepwater Bay	15/02/83	1300	1							2	6	7	18	9	2	6				50	21.6	19.0	4
152 (15)	2	Lund	16/02/83	1000	2					1	5	6	16	4	9	6	2					49	20.1	19.0	25
142 (14)	3	Deep Bay	18/02/83	2100	3							1	1	13	10	18	5					48	21.7	19.0	2
132 (13)	4	Deepwater Bay	26/02/83	1945	4					4	9	19	10	4	1							47	18.6	19.0	68
142 (14)	5	Deep Bay	27/02/83	1930	5			2	4	4	7	7	5	14	4	3						50	18.9	19.0	48
152 (15)	6	Powell Mill	28/02/83	1030	6						3	5	7	21	7	7						50	20.4	19.0	16
152 (15)	7	Lund	28/02/83	1500	7					1	3	9	8	17	3	7	2					50	20.2	19.0	26
152 (15)	8	Brlton I's.	28/02/83	1900	8					1	7	11	17	12	2							50	19.3	19.0	38
136 (13)	9	Evans Bay	01/03/83	0530	9				1	1	8	13	10	14	3	1						51	19.2	19.0	46
152 (15)	10	North of Atrevida Reef	01/03/83	1050	-				Water haul													-	-	-	-
152 (15)	11	Powell River Mill	01/03/83	1230	10					1	3	10	15	16	3	2						50	19.7	19.0	28
152 (15)	12	Lund	01/03/83	1645	11							6	17	13	7	4	3					50	20.4	19.0	12
152 (15)	13	Btwn. Lund & Thulin Pass	02/03/83	0645	12					1	2	8	10	13	7	7	1	1				50	20.3	19.0	22
152 (15)	14	Lund	03/03/83	0730	-				Water haul													-	-	-	-

Table 20 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "PACIFIC OCEAN", STAT. AREAS 13-15, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
152 (15)	15	Lund	03/03/83	0830	-	Water haul																-	-	-	-
152 (15)	16	Lund	03/03/83	0900	13						1	6	6	10	14	11	1	1				50	20.9	19.0	14
152 (15)	17	Lund	03/03/83	1810	14				1	1	4	16	11	11	4	2						50	19.4	19.0	44
152 (15)	18	Lund	04/03/83	0630	15	No information																-	-	-	-
152 (15)	19	Lund	04/03/83	0745	16					1	6	8	10	6	13	5	1					50	20.1	19.0	30
152 (15)	20	Sliammon	05/03/83	0630	17	No information																-	20.5	14.0	16
152 (15)	21	Sliammon Village	06/03/83	0700	18		1	2	1	6	11	14	7	8								50	19.2	19.0	42
152 (15)	22	Sliammon Village	06/03/83	0800	19							8	11	11	15	6	2					51	20.6	19.0	16
152 (15)	23	Sliammon Village	07/03/83	0745	20					1	1	9	14	4	12	7	1	1				50	20.4	19.0	22
152 (15)	24	Sliammon Village	07/03/83	1100	-	No information																			
152 (15)	25	S. of Sliammon Village	07/03/83	1430	21					2	4	16	10	11	2	5						50	19.5	19.0	44
152 (15)	26	Mill area Powell River	09/03/83	0700	-	Water haul																-	-	-	-
152 (15)	27	Sliammon	09/03/83	0845	22				1	8	11	14	9	5	1	1						50	18.4	19.0	68
137 (15)	28	Heriot Bay	14/03/83	1300	23					2	10	17	9	9	5							50	18.9	19.0	58

Table 21. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ARGENT FISHER", STAT. AREAS 17 and 18, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Tast No.	Sex Ratio				Roe Yield %				Roe Grade (Pcs)			Spnd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	Wt.	Adj. wt.	#1	#2	#3		
										No.	%	No.	%									
173 (17)	1	Off Ruxton Pass (near Valdes I. side)	22/02/83	1945	1500	500	150	-	1	69	51	65	49	0		0		0	0	65		
171 (17)	2	Porlier Pass	23/02/83	0520-	10,000 / 15,000	100	15- / 20	6.4	1	64	58	47	42	0		0		1	0	46	1	
173 (17)	3	Pylades Channel	23/02/83	1915	3000	500	60- / 70	6.7	1	45	54	38	46	0		0		1	5	32		
171 (17)	4	Chivers Pt.	23/02/83	2335-	10,000 / 15,000 / 2000- / 3000		10	6.5	1	51	41	72	59					0	2	70		13
										Juv	les											
183 (18)	5	Plumper Sound	24/02/83	1855-	200 / 300	30	5	6.7	1	43	52	40	48	0		0		0	8	32		
181 (18)	6	Bottom and Satellite Ch.	25/02/83	0550-	2000 / 3000	150	30- / 40	6.5	1	36	49	37	51	0		0		0	9	28		
171 (17)	7	Porlier Pass	25/02/83	1955	10,000	300	2	6.3	1	55	56	44	44	0		0		2	21	21		
173 (17)	8	Pylades Channel	26/02/83	0515	1500	120	40	6.2	1	52	58	37	42	0		0		8	9	20		
172 (17)	9	Nanoose Bay	26/02/83	1900	900	400	300	6.4	1	55	53	49	47			3.0	3.18	16	8	25		
173 (17)	10	Pylades Channel	27/02/83	1910	1000	250	100	6.5	1	63	62	39	38			2.2	2.88	8	4	27	3	
									2	61	62	38	38			3.8	4.95	12	4	22		
173 (17)	11	Cardale Pt. (N. of Porlier Pass)	27/02/83	2155	10,000	400	200	6.4	1	46	55	38	45			2.2	2.43	6	6	26		
172 (17)	12	Nanoose Bay	01/03/83	0400	3000	300	200	6.2	1	47	55	38	45			7.0	7.83	22	2	14		
									2	46	60	31	40			8.4	10.42	25	2	4		
									3	48	56	37	44			8.6	9.89	25	2	10		
172 (17)	13	Nanoose Bay	01/03/83	0600	3000	300	200	6.0	1	27	38	45	62			11.2	8.96	32	4	9	1	
									2	35	47	39	53			9	8.54	26	6	7		
									3	48	65	26	35			6.4	9.12	17	2	7		

Table 21 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ARGENT FISHER", STAT. AREAS 17 and 18, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %				Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	Wt.	Adj. wt.	#1	#2	#3		
										No.	%	No.	%									
172 (17)	14	Nanoose Bay	01/03/83	1520	3000+		200	6.2	1	40	48	44	52			10.8	10.31	30	3	11		
									2	40	44	51	56			9.8	8.75	33	4	14	3	
172 (17)	15	Nanoose Bay	02/03/83	0320	3000		5	6.2	1	63	57	47	43			0.4	0.47	5	3	39	14	
							Two layers of herring - mature on bottom															
172 (17)	16	Nanoose Bay	02/03/83	0550	3000		20	6.2	1	48	49	50	51			0.4	0.39	4	3	43	23	
173 (17)	17	Pylades Channel	02/03/83	2000		50	40	6.3	1	54	59	37	41			2.6	3.19	12	5	21		
									2	61	48	65	52	4.25	4.12	5.1	4.94	24	11	30		
173 (17)	18	Head of Pylades Channel	03/03/83	0600	500-600	300-400	2-3	6.2	1	63	50	63	50	4.25	4.25	5.36	5.36	27	12	24	6	
171 (17)	19	Porlier Passage	03/03/83	1915	6000-8000	L. Skim	40	6.3	1	57	46	68	54			0.69	0.63	7	12	49	8	
171 (17)	20	Porlier Pass	04/03/83	0400	8000-10,000	6	5	6.15	1	52	47	59	53			0.5	0.47	2	5	52	33	
172 (17)	21	Northumberland Channel	04/03/83	1730	1000	100	1	6.1	1	57	47	64	53	8.0	7.56	8.0	7.56	46	7	11	21	
									2	68	53	60	47	7.75	8.26	7.9	8.42	43	7	10	12	
									3	79	61	50	39	6.0	7.73	5.9	7.60	36	2	12	24	
172 (17)	22	Northumberland Channel	08/03/83	0825			0	6.5		Water haul												
171 (17)	23	Porlier Passage	09/03/83	0612			0	Corkline broke														
171 (17)	24	Porlier Passage	09/03/83	2005		7	5		1	14	36	25	64	0		0		2	4	19	34	
181 (18)	25	Satellite Ch. (off Fulford Harbour)	10/03/83	1850	Skimmer		20	7.0	1	5	56	4	44	0		0		0	0	4	92	
173 (17)	26	North Cove	11/03/83	1134		100	?	6.9	1	34	45	42	55	9.0	8.14	11.36	10.27	42	0	0	6	
									2	30	41	44	59	8.5	7.14	10.07	8.46	39	2	3	5	
									3	35	46	41	54	8.2	7.61	11.64	10.80	39	2	0	1	

Table 21 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ARGENT FISHER", STAT. AREAS 17 and 18, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %				Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	Wt.	Adj. wt.	#1	#2	#3		
										No.	%	No.	%									
171 (17)	27	Porlier Pass	13/03/83	0602	30	30	1	6.8	1	41		Spawned out		0		0		2	7	5	55	
									2	29								1	2	11	59	
173 (17)	28	Stuart Channel, Telegraph Harbour	14/03/83	0431	200	30-40		6.7						Juvenile herring								
173 (17)	29	Stuart Channel (off Tent Island)	14/03/83	0542	200-300	skimmer	1-2	6.5		7		Spawned out		0		0		1			104	
183 (18)	30	Plumper Sound	16/03/83	1930	20	20	10	7.3	1	5		Spawned out		0		0					95	
171 (17)	31	Porlier Pass	18/03/83	0550		5-10	2	6.6	1	19	70	8	30	Spawned out				0	0	8	62	

Fishery information (Table 15).

Table 22. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "ARGENT FISHER", STAT. AREAS 17 and 18, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
173 (17)	1	Off Ruxton Pass (near Valdes I. side)	22/02/83	1945	1					1	2	4	8	15	13	3	3					49	20.5	19.0	14
171 (17)	2	Porlier Pass	23/02/83	0520	2				1	1	1	4	7	4	10	7	11	4				50	21.4	19.0	14
173 (17)	3	Pylades Channel	23/02/83	1915	3					3	2	3	8	12	11	5	5	2				51	20.7	19.0	16
171 (17)	4	Chivers Pt.	23/02/83	2335	4		1	3	1	10	11	5	7	9	4							51	18.2	19.0	61
183 (18)	5	Plumper Sound	24/02/83	1855	5					2	3	4	6	5	8	13	6	3				50	21.2	19.0	18
181 (18)	6	Bottom end Satellite Ch.	25/02/83	0550	6				1	0	1	1	7	8	11	13	8					50	21.4	19.0	6
171 (17)	7	Porlier Pass	25/02/83	1955	7					3	4	2	6	13	11	5	1	3	2			50	20.7	19.0	18
173 (17)	8	Pylades Channel	26/02/83	0515	8					1	2	4	6	7	19	6	3	3				51	21.0	19.0	14
172 (17)	9	Nanoose Bay	26/02/83	1900	9			1	1	2	8	6	12	6	5	6	3					50	19.7	19.0	36
173 (17)	10	Pylades Channel	27/02/83	1910	10			1	1	6	1	2	6	9	10	9	5					50	20.4	19.0	22
173 (17)	11	Cardale Pt. (N. of Porlier Pass)	27/02/83	2155	11				1	2	0	4	5	11	19	6	2	1				51	20.8	19.0	14
172 (17)	12	Nanoose Bay	01/03/83	0400	12					2	1	5	4	10	13	7	5	3	0	1		51	21.2	19.0	16
172 (17)	13	Nanoose Bay	01/03/83	0600	13							4	6	8	14	10	7	1				50	21.4	19.0	8
172 (17)	14	Nanoose Bay	01/03/83	1520	14					4	1	9	4	10	13	7	2					50	20.3	19.0	28

Table 22 (cont'd). Length frequency distribution of herring. RDE HERRING CHARTER SEINER "ARGENT FISHER", STAT. AREAS 17 and 18, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
172 (17)	15	Nanoose Bay	02/03/83	0320	15			1	8	13	9	8	6	3	0	1	1					50	17.7	19.0	78
172 (17)	16	Nanoose Bay	02/03/83	0530	16			No length data														50		19.0	76
173 (17)	17	Pylades Channel	02/03/83	2000	17			1	3	5	3	5	14	6	6	6	1	1				51	19.5	19.0	33
173 (17)	18	Head of Pylades Channel	03/03/83	0600	18				1	4	3	2	10	9	14	5	1					49	20.2	19.0	20
171 (17)	19	Porlier Passage	03/03/83	1915	19					1	2	6	15	9	7	5	4	1				50	20.4	19.0	18
171 (17)	20	Porlier Pass	04/03/83	0400	20		1	0	1	8	12	6	5	7	9							49	18.7	19.0	57
172 (17)	21	Northumberland Channel	04/03/83	1730	21					4	8	10	4	10	8	5	1					50	19.6	19.0	44
172 (17)	22	Northumberland Channel	08/03/83	0825	-					Water haul												-	-	-	-
171 (17)	23	Porlier Passage	09/03/83	0612	-					Corkline broke												-	-	-	-
171 (17)	24	Porlier Passage	09/03/83	2005	22							5	3	12	6	9	6	4	1	1		47	21.7	19.0	11
181 (18)	25	Satellite Ch. (off Fulford Harbour)	10/03/83	1850	23					2	5	3	11	13	11	4	0	1				50	20.2	19.0	20
173 (17)	26	North Cove	11/03/83	1134	24					1	0	3	9	16	7	6	2	4	2			50	21.1	19.0	8
171 (17)	27	Porlier Pass	13/03/83	0602	25		1	0	1	4	8	5	11	10	3	4	1	1	1			50	19.5	19.0	38
173 (17)	28	Stuart Channel, Telegraph Harbour	14/03/83	0431	-					Juvenile herring												-	-	-	-

Table 22 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "ARGENT FISHER", STAT. AREAS 17 and 18, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
173 (17)	29	Stuart Channel (off Tent Island)	14/03/83	0542	26				1	7	4	4	7	13	4	8	2					50	19.8	19.0	32
185 (18)	30	Plumper Sound	16/03/83	1930	27					3	1	1	14	12	13	2	3	1				50	20.5	19.0	10
171 (17)	31	Porlier Pass	18/03/83	0550	28				1	2	3	8	8	11	4	10	3					50	20.2	19.0	22

Table 23. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "PACHENA I", STAT. AREA 23, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage In loc.	Tonnage Set on	Tonnage Est. catch	Temp (°C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield % Vol.	Roe Yield % Adj. vol.	Roe Yield % Wt.	Roe Yield % Adj. wt.	Roe Grade (Pcs) #1	#2	#3	Spnd. out	Juv. or Immat.
232 (23)	1	Forbes I.	24/02/83	1615		50	40	9.0	1	34	50	34	50			9.4	9.40	22	5	7		
									2	35	53	31	47			7.6	8.09	20	5	6		
									3	39	55	32	45			8.6	9.53	20	2	10		
									4	60	60	40	40	6.0	7.50			20	3	17		
232 (23)	2	St. Ines I.	26/02/83	1530	1000	200	150	8.6	1	30	46	35	54			9.3	8.64	26	2	7		
									2	40	55	33	45			9.8	10.84	26	2	5		
									3	38	51	36	49			8.9	9.16	23	1	12		
232 (23)	3	Forbes I.	27/02/83	0740			0	-	-	Water haul												
232 (23)	4	Shears I's.	27/02/83	1645			?	8.0	1	36	57	27	43			9.6	11.19	25	1	1		
									2	29	43	38	57			13.7	12.08	34	1	2		
									3	31	46	37	54			10.9	10.02	30	1	6		
231 (23)	5	Pipestem Inlet	27/02/83	2130	1500-2000	800-1000	300		1	22	33	44	67			12.3	9.22	36	4	4		
									2	34	55	32	45			9.6	9.90	25	4	3		
									3	29	45	36	55			13.7	12.36	32	3	1		
232 (23)	6	1/2 mi S. of Forbes I.	28/02/83	1145		40	40	8.6	1	33	43	44	57			6.3	5.52	22	2	20		
									2	34	43	45	57			7.6	6.67	23	1	21		
									3	32	40	49	60			7.6	6.28	24	2	23		
232 (23)	7	Forbes I.	28/02/83	1535	1000	400	75		1	46	57	35	43					20	7	8		
									2	31	44	40	56					24	2	14		
									3	38	53	34	47					22	3	9		
232 (23)	8	Spilling Islet	01/03/83	0545		300	80	8.2	1	43	50	43	50	11.0	11.00	11.26	11.26	34	2	7		
									2	50	52	46	48	10.5	10.96	10.6	11.06	35	1	10		
									3	51	52	48	48	10.0	10.31	10.1	10.41	38	4	6		
232 (23)	9	Shears I.	02/03/83	0947		100	40		1	33	43	43	57			13.2	11.66	33	5	5		
									2	34	48	37	52			13.3	12.76	30	3	4		
									3	40	52	37	48			9.6	9.98	30	2	5		
232 (23)	10	Spilling Islet	02/03/83	1300			0	-	-	Water haul												

Table 23 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "PACHENA I", STAT. AREA 23, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage In loc.	Tonnage Set on	Tonnage Est. catch	Temp (°C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield % Vol.	Roe Yield % Adj. vol.	Roe Yield % Wt.	Roe Yield % Adj. wt.	Roe Grade (Pcs) #1	#2	#3	Spnd. out	Juv. or immat.
232 (23)	11	Barkley Sd./ Spilling Islet	02/03/83	1550	500-1000	150-200	30		1	38	54	33	46			11.7	12.58	31	2	0		
									2	27	43	36	57			15.6	13.66	36	0	0		
232 (23)	12	Spilling Islet	02/03/83	1650	500-1000	200	60-70	8.2	1	43	50	43	50			10.2	10.20	34	4	5		
									2	35	43	47	57			14.2	12.39	41	3	3		
232 (23)	13	Hermit Islet	02/03/83	1810	1000	100			1	46	62	28	38			10.8	14.29	26	1	1		
									2	30	42	42	58			14.0	12.01	35	3	4		
									3	34	47	38	53			15.0	14.20	35	1	2		
									4	33	47	37	53			9.96	9.41	33	2	2		
									5	32	43	42	57			10.02	8.82	41	0	1		
232 (23)	14[a]	Barkley Sd. (Toquart Bay)	05/02/83	1030	5000-7000	150	230		1	26	41	38	59	net		13.8	11.62	37	0	1		
									2	39	51	37	49	net		11.7	12.01	33	0	4		
									3	37	47	41	53	net		11.6	11.03	33	4	4		
									4	36	46	43	54	pump		12.2	11.21	39	1	3		
									5	46	55	37	45	pump		9.8	10.99	33	0	4		
									6	40	50	40	50	pump		11.2	11.20	37	0	3		
									7	39	53	35	47	pump		13.0	15.86	34	0	1		
									8	34	48	37	52	pump		14.2	13.63	37	0	0		

Seine Opening

Management sub-area 23 - 10 opened on March 1 for 3 hours and 26 minutes for a hailed catch of 5,100 tons, tested at 14% roe maturity.

[a] Charter payment herring.

Table 24. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "PACHENA I", STAT. AREA 23, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
232 (23)	1	Forbes I.	24/02/83	1615	1					1	0	1	1	5	10	18	9	4	3			50	22.4	19.0	4
232 (23)	2	St. Ines I.	26/02/83	1530	2					3	1	4	5	7	6	14	7	2	1			50	21.3	19.0	16
232 (23)	3	Forbes I.	27/02/83	0740	-	Water haul																-	-	-	-
232 (23)	4	Shears I.	27/02/83	1645	3							1	2	6	8	21	10	1	1			50	22.2	19.0	2
231 (14)	5	Pipestem Inlet	27/02/83	2130	4					2	1	0	3	7	16	13	5	3				50	21.6	19.0	6
232 (25)	6	1/2 mi S. of Forbes I.	28/02/83	1145	5					1	1	2	5	10	13	10	6	0	2			50	21.4	19.0	8
232 (23)	7	Forbes I.	28/02/83	1535	6					1	6	2	9	5	11	10	6	0	1			51	20.9	19.0	18
232 (23)	8	Spilling Islet	01/03/83	0545	7								5	8	12	14	9	3				51	22.0	19.0	0
232 (23)	9	Shears I.	02/03/83	0947	8					3	6	2	10	6	9	7	4	3				50	20.6	19.0	22
232 (23)	10	Spilling Islet	02/03/83	1550	-	Water haul																-	-	-	-
232 (23)	11	Barkley Sd./ Spilling Islet	02/03/83	1550	-	No information - large fish																-	-	-	-
232 (23)	12	Spilling Islet	02/03/83	1650	-	No information																-	-	-	-
232 (23)	13	Hermit Islet	02/03/83	1810	-	No information																-	-	-	-
232 (23)	14	Barkley Sd. (Toquart Bay)	05/03/83	1030	-	No information																-	-	-	-

Table 25. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "OCEAN HORIZON", STAT. AREA 24, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage In loc.	Tonnage Set on	Tonnage Est. catch	Temp (°C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield % Vol.	Roe Yield % Adj. vol.	Roe Yield % Wt.	Roe Yield % Adj. wt.	Roe Grade (Pcs) #1	#2	#3	Spnd. out	Juv. or immat.
243 (24)	1	2 mi N. of Sharp Pt.- Sydney Inlet	26/02/83	0810		100	75	-	1	58	50	59	50	8.5	8.43			45	1	13		
									2	32	44	41	56			7.8	6.94	23	15	3		
									3	38	44	48	56			6.5	5.82	33	0	15		
									4	34	41	48	59			10.3	8.80	32	0	16		
									5	53	46	62	54	8.0	7.42			40	2	20		
244 (24)	2	Millar Channel, 1.5 mi NW. of McKay I.	26/02/83	1235	500-600	200	30	7.6	1	25	28	64	72			2.6	1.81	8	0	56		
									2	21	24	68	76			1.5	0.98	7	3	58		
244 (24)	3	Clifford Pt.	26/02/83	1625	200	75	75	8.5	1	34	47	39	53			6.9	6.46	21	1	17		
									2	38	50	38	50			7.4	7.40	21	2	15		
									3	48	43	64	57	8.0	7.01			32	3	29		
243 (24)	4	Steamer Cove	27/02/83	1410	50-100	15	15	8.5	1	41	38	67	62			2.8	2.26	13	0	54		
242 (24)	5	Hesquiat Harbour - Leclair Pt.	28/02/83	1415	1000	20	15	9.1	1	34	59	24	41	Gonads		12.1	14.61	23	3	1	4	
									2	28	49	29	51	running		12.5	12.28	27	0	2	4	
									3	27	44	35	56	Small spn.		12.5	11.06	29	0	6	5	
243 (24)	6	Sydney Inlet	02/03/83	0750	300-400	60-70	10	7.6	1	56	47	64	53	9.5	8.91			38	2	24	7	
									2	25	32	52	68			11.9	8.81	35	0	17	2	
									3	30	40	45	60			8.8	7.33	28	2	15	6	
									4	36	43	48	57			8.8	7.71	32	2	14	1	
244 (24)	7	Millar Channel	02/03/83	1530	300	40	10	8.9	1	51	45	63	55	12.5	11.30			45	3	15		
									2	58	50	58	50	9.0	9.00			38	0	20		
									3	51	48	56	52	12.2	11.66			43	4	9		
245 (24)	8	Rassler Pt.	03/03/83	0925	1000	175	75	9.35	1	55	39	86	61	8.5	6.97			49	7	30		
									2	60	41	88	59	12.0	10.08			65	7	16		
									3	67	47	75	53	9.2	8.71			45	4	26		
245 (24)	9	Rassler Pt.	04/03/83	0955	1000	80	25	8.7	1	62	52	58	48	13.2	13.66			51	0	7		
									2	57	44	72	56	11.5	10.30			51	3	18		
									3	67	55	54	45	11.5	12.89			44	0	10		
245 (24)	10	Hecate Bay	04/03/83	1335	1000	70	5	8.8	1	48	44	61	56	13.8	12.32			52	3	6		
									2	47	43	62	57	15.0	13.18			57	2	3		

Table 25 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "OCEAN HORIZON", STAT. AREA 24, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage In loc.	Tonnage Set on	Tonnage Est. catch	Temp (°C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield % Vol.	Roe Yield % Adj. vol.	Roe Grade (Pcs) #1	#2	#3	Spnd. out	Juv. or immat.
243 (24)	11	Sydney Inlet	05/03/83	1730	300-500	100	100	8.6	1	49	49	51	51	15.0	14.71	49	0	2		
									2	45	46	52	54	15.5	14.46	49	0	3		
									3	44	46	51	54	13.5	12.57	45	0	6		
245 (24)	12	Maurus Channel (Robert Pt.)	07/03/83	1020	2000	80	80	9.2	1	63	56	50	44	11.1	12.56	42	0	8		
									2	52	45	63	55	14.2	12.96	57	0	6		
245 (24)	13	Maurus Channel (3/4 mi N. of Rossler Pt.)	07/03/83	1625	2000-2500	70-80	5	9.3	1	74	52	67	48	9.0	9.47	47	4	16		
245 (24)	14	Hecate Bay	09/03/83	0905		40	10	8.7	1	49	47	55	53	14.5	13.71	53	1	1		
									2	33	35	62	65	16.0	12.25	60	0	2		
245 (24)	15	Serenac I.	09/03/83	1540		30	0		Water haul											
245 (24)	16	Welcome I.	09/03/83	1720		200	100	9.0	1	57	57	43	43	8.0	9.30	39	0	4		
									2	51	48	55	52	12.5	12.04	52	0	3		
									3	44	47	49	53	10.5	9.96	44	0	5		
243 (24)	17	Bottom of Sydney Inlet	11/03/83	0825	Few scrates		0		Water haul											
245 (24)	18	Rossler Pt.	12/03/83	1100	1000-1500	175	30	9.0	1	41	46	49	54	12.5	11.49	48	0	1		
									2	47	45	58	55	15.5	14.04	56	0	2		
									3	43	46	51	54	14.0	12.89	48	0	3		

No commercial fishery opening in Area 24.

Table 26. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "OCEAN HORIZON", STAT. AREA 24, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
243 (24)	1	2 mi N. of Sharp Pt. - Sydney Inlet	06/02/83	0810	1					1		5	6	12	12	10	1	3				50	21.0	19.0	12
244 (24)	2	Miller Channel, 1.5 mi NW. of McKay I.	26/02/83	1235	2					3	3	2	12	14	8	2	4	2				50	20.4	19.0	16
244 (24)	3	Clifford Pt.	26/02/83	1625	3						3	1	4	8	9	15	7	3				50	21.6	19.0	8
243 (24)	4	Stenner Cove	27/02/83	1410	4					8	17	11	7	2	2	2	0	1				50	18.5	19.0	72
242 (24)	5	Hesquiat Harbour - Leclair Pt.	28/02/83	1415	5								4	3	12	15	12	3	1			50	22.3	19.0	0
243 (24)	6	Sydney Inlet	02/03/83	0750	6					1	2	2	3	9	14	13	2	4				50	21.4	19.0	10
244 (24)	7	Miller Channel	02/03/83	1550	7					2	3	1	3	11	9	13	7	1				50	21.3	19.0	12
245 (24)	8	Rassler Pt.	03/03/83	0925	8				1	7	9	7	10	9	3	3	0	0	1			50	19.1	19.0	48
245 (24)	9	Rassler Pt.	04/03/83	0955	9				1	5	5	1	5	9	12	8	4					50	20.4	19.0	24
245 (24)	10	Hecate Bay	04/03/83	1335	10					1	0	1	3	9	14	12	7	3				50	21.7	19.0	4
245 (24)	11	Sydney Inlet	05/03/83	1730	11						1	2	8	15	8	9	6	2	1			50	21.3	19.0	6
245 (24)	12	Maurus Channel (Robert Pt.)	07/03/83	1020	12					2	3	2	12	6	9	8	6	2				50	20.9	19.0	14
245 (24)	13	Maurus Channel (3/4 mi N. of Rassler Pt.)	07/03/83	1625	13				2	1	5	5	11	9	9	5	3					50	20.1	19.0	26
245 (24)	14	Hecate Bay	09/03/83	0905	14						1	1	3	8	8	13	13	3				50	22.0	19.0	4

Table 26 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "OCEAN HORIZON", STAT. AREA 24, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
245 (24)	15	Saranac I.	09/03/83	1540	-				Water haul													-	-	-	-
245 (24)	16	Welcome I.	09/03/83	1720	15				2	3	2	5	9	6	11	8	4					50	20.3	19.0	24
243 (24)	17	Bottom of Sydney Inlet	11/03/83	0825	-				Water haul													-	-	-	-
245 (24)	18	Rassler Pt.	12/03/83	1100	16					4	0	1	7	7	6	12	8	2	2			49	21.5	19.0	10

Table 27. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "BERNICE C", STAT. AREAS23 and 25, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage In loc.	Tonnage Set on	Tonnage Est. catch	Temp (°C)	Test No.	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Roe Yield % Vol.	Roe Yield % Adj. vol.	Roe Yield % Wt.	Roe Yield % Adj. wt.	Roe Grade (Pcs) #1	#2	#3	Spnd. out	Juv. or immat.
252 (25)	1	Red Light across from Resolution Cove	25/02/83	0757			0.1	6.4	1	72	53	65	47	6.0	6.41			37	7	21		
									2	51	55	42	45			7.6	8.41	27	3	12		
									3	37	39	57	61			10.0	8.25	40	2	15		
									4	38	41	55	59	Males		9.8	8.29	35	4	16		
251 (25)	2	Espinosa	25/02/83	1437	1000	1000	300	9.0	1	26	37	45	63	running		10.0	7.89	26	10	9		
									2	39	53	35	47			9.2	9.73	24	0	11		
									3	55	57	42	45	9.0	10.39	9.2	10.62	28	5	9		
253 (25)	3	6 cables S. of Double I.	25/02/83	2000	1000	500-600	10	8.4	1	27	34	53	66			0		2	2	49		1
253 (25)	4	Esperanza (off Centre I.	26/02/83	0952	1500	150	80-100	8.3		No sample taken												
			light Mid-Channel)																			
253 (25)	5	Top end Centre I.	26/02/83	1449	2000-3000	50	30	8.8	1	32	48	34	52			9.2	8.93	21	3	10		
									2	36	50	36	50			8.6	8.60	22	5	9		
									3	51	46	61	54	8.0	7.34	8.2	7.52	38	4	19		
253 (25)	6	Rose Harbour towards Centre I.	27/02/83	0800	2500-3000	200-300	15	7.8	1	39	57	29	43			7.0	8.22	22	2	5		
									2	32	44	40	56			10.0	8.99	31	6	3		
									3	50	52	47	48	9.5	9.79	10.0	10.31	41	5	1		
									4	40	56	31	44			8.0	9.15	24	6	1		
253 (25)	7	3 cables S. off top of Centre I.	27/02/83	1151	2500-3000	50-60	0	8		Water haul												
253 (25)	8	3 cables S. off top of Centre I.	27/02/83	1223	2500-3000	50 60	15	8	1	35	49	36	51			9.8	9.66	27	4	5		
									2	40	57	30	43			8.8	10.26	25	2	3		
									3	47	46	55	54	11.0	10.20	11.4	10.58	43	4	8		
253 (25)	9	Mouth of Port Langford (N. of Colwood Rocks)	03/03/83	1722	4000-5000	10	3-4	8.8	1	33	51	32	49			13.2	13.41	30		2		
									2	37	51	35	49			8.6	8.85	29	4	2		
									3	38	52	35	48			9.4	9.81	33	0	2		
253 (25)	10	2 cables N. of Port Langford	03/03/83	1955		20	2-3	8.8	1	28	37	47	63			13.2	10.53	42	2	3		
									2	27	42	38	58			14.0	11.97	37	0	1		

Table 27 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "HERNICE C", STAT. AREAS 23 and 25, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage: In loc.	Tonnage: Set on	Tonnage: Est. catch	Temp (°C)	Test No.	Sex Ratio: M No.	Sex Ratio: M %	Sex Ratio: F No.	Sex Ratio: F %	Roe Yield %: Vol. Adj. vol.	Roe Yield %: Wt.	Roe Yield %: Adj. wt.	Roe Grade (Pcs): #1	#2	#3	Spnd. out	Juv. or Immat.
232 (23)	11	Macoah Passage	05/03/83	0142	1000	30-40	25		1	39	61	25	39		11.2	14.32	25	0	0		
									2	37	57	28	43		11.4	13.23	27	1	0		
									3	50	53	45	47	14.5	15.30		42	2	1		
232 (23)	12[a]	Stopper I., Macoah Pass.	05/03/83	0310				8.2	1	30	42	42	58		14.6	12.52	35	1	6		
									2	39	55	32	45		13.5	14.97	29	0	3		
									3	48	47	55	53	11.2	10.49		43	5	7		
									4	37	53	33	47		12.2	12.95	30	0	3		

Fishery information for Area 23 (Table 23).

Gillnet opening

Management sub-areas 25 - 13 and 25 - 14 opened on March 3 for 14 hours for a hailed catch of 2,450 tons, tested at 10.5% - 13% roe maturity.

Winter Harbour in Area 27 opened between February 28 and March 4 for 88 hourse for a hailed catch of 190 tons, tested at 12% - 17% roe maturity.

[a] Charter payment herring.

Table 28. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "BERNICE C", STAT. AREA 23 and 25, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm) 12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
252 (25)	1	Red Light across from Resolution Cove	25/02/83	0757	1						3	8	8	7	10	8	4	1				49	20.7	19.5	29
251 (25)	2	Espinosa	25/02/83	1437	2						1	1	9	14	16	8	1					50	20.9	19.5	12
253 (25)	3	6 Cables S. of Double I.	25/02/83	2000	3				1	1	2	1	5	17	13	9	1					50	20.7	19.5	12
253 (25)	4	Esperanza (off Centre I. light Mid-Channel)	26/02/83	0952	4	No sample taken																-	-	-	-
253 (25)	5	Top end Centre I.	26/02/83	1449	5							2	5	7	20	10	4	2				50	21.5	19.5	6
253 (25)	6	Rose Harbour towards Centre I.	27/02/83	0800	6					1	0	3	2	9	13	13	9					50	21.6	19.5	8
253 (25)	7	3 cables S. off top of Centre I.	27/02/83	1151		Water haul																-	-	-	-
253 (25)	8	3 cables S. off top of Centre I.	27/02/83	1223	7								2	7	12	23	5	1				50	22.0	19.5	2
253 (25)	9	Mouth of Port Langford (N. of Colwood Rocks)	03/03/83	1722	8							1	2	10	10	20	4					47	21.7	19.5	6
253 (25)	10	2 cables N. of Port Langford	03/03/83	1955	9					1	0	0	4	9	13	15	7	1				50	21.7	19.5	4
232 (23)	11	Macoah Passage	05/03/83	0142	10								1	7	12	11	7	5				43	22.2	19.0	0
232 (23)	12	Stopper I., Macoah Pass.	05/03/83	0310	11						6	1	3	7	14	12	7					50	21.2	19.0	14

Appendix Table 1. Onboard sampling instructions.

1. Selection of sample sites

   (a) A list of priority sites will be supplied to charter masters by the district Herring Management Coordinator.

   (b) While the onboard Fisheries Service representative is in charge of all charter operations, consultation with the vessel master is necessary to determine if it is possible to set in any given location at any given time.

2. Number of sample sets

   (a) For each important fishing location, secure 1 or 2 sample sets per visit. (e.g. from Mayne Bay secure one set in the evening and one in the morning, then travel to another location). Each such major location should be resampled at regular intervals.

   (b) If it is evident from echosounding that few fish are present in the major fishing location, immediately go on to the next site.

   (c) Try not to make large sets if the vessel master is confident a good cross section of available fish can be taken in a smaller set.

   (d) Do not set twice on immature (young herring) stocks unless doubt exists that the first set was not representative of stocks in that location.

   (e) Whether or not fish are caught, complete the Wheelhouse and Sample Log after each set; also, note the set in the Daily Log (Black Book).

3. Taking a random sample from the pursed seine

   (a) Dry up the seine only as necessary to obtain samples; push the dip net or brailer vertically deep into the seine, then pull up quickly through a "BOIL" of fish so as to give no advantage to larger, faster fish. Some vessel masters may prefer to pump samples, eliminating much of the "drying up" process.

   (b) Assure yourself of enough fish by taking at least 100 lb (45 kg , 2 or 3 buckets) from each set.

   (c) After obtaining a representative sample, immediately release the remaining fish to minimize scale damage.

   (d) Fill one sample bucket with a random sample of herring; place one completed shipping/sample lable inside and on top of the fish and affix the other to the bucket handle. If sampling is delayed, cover the fish with a tarp to prevent loss to birds.

Appendix Table 1 (cont'd).

(e) Keep samples refrigerated (on ice or in chilled seawater).

(f) Caution the vessel master to instruct the crew not to throw any fish overboard until Fisheries Service samples have been processed.

4. Processing onboard charter vessel samples

(a) Sample for roe yield using standard volumetric procedures as detailed in the instructions included with the ROE SAMPLE KIT.

(b) Subsample the fish

i) Subsample from herring on deck by filling several buckets with a shovel or dipnet - do not pick out fish individually.

ii) The sampler should face away from the bucket containing fish and drop his hand into it. The first fish touched must be sampled, and each fish thereafter is selected by the same method until the sample is complete (50 fish). If a fish is not suitable for sampling (damaged), discard it and continue.

(c) Measure the fish

i) Tack the waterproof Wheelhouse and Sample Log to the measuring board.

ii) Pencil in the appropriate "cut off" line on the measuring sheet.

iii) Before measuring a fish, use a sharp knife to remove scales from the tail section. This is very important since the length measurement goes to the end of the silvery colour on the skin of the fish and not to the end of the scales which cover the silvery colour on the skin and extend beyond that point.

iv) Measure 50 fish, each from the tip of the lower jaw to the end of the silvery colour on the tail. Every fish length should be recorded by marking the interval it falls into.

(d) IMPORTANT - Please attempt to send the biological samples to Vancouver and Nanaimo before they decompose. Advise by B.C. telephone or radio telephone (to XL177) of when and how the samples are sent, i.e. commercial carrier destination and estimated time of arrival.

Appendix Table 2. The 1984 roe herring cutoff lengths used to separate age 3 herring from older fish.

Statistical Area	Cutoff length
NORTH COAST	
Area 2E	190 mm
2W	200 mm
5	180 mm
6 - 10	185 mm
STRAIT OF GEORGIA	
Areas 14 - 18	190 mm
WEST COAST VANCOUVER ISLAND	
23	190 mm
24	190 mm
25	190 mm
27	190 mm

NOTE: It should be noted that these cutoff lengths are used as reference points only in order to compare different test samples. They are derived from the average lengths of three-year-old fish from the previous year and may or may not reflect the average length this year. In addition, there can be a considerable overlap in size between fish of different ages, so there is no definite length that can be used to separate the two groups of fish. Generally, these cutoff lengths provide additional information on size distribution of the stocks.

An example of the usefulness of these cutoff lengths would be when comparing test sets made at the same location on different days. A large difference in the percentage of fish below the cutoff length may indicate that two different stocks of fish are present or that new fish have moved into the area. This is additional information used to determine the overall stock status.

Appendix Table 3. Instructions for estimating percent roe yield by volume.

This KIT contains:

- one clear plastic volumetric cylinder
- one 4 imp. gal. (18 l) bucket with lid
- instruction sheet with photographs at maturity stages

Determination of roe maturity:

1. Randomly obtain approximately 75 lb (34 kg) of herring from the set or load.
2. Fill the roe test bucket with fish to the top of the bucket.
   Note - The bucket should be filled to overflowing.
3. Determine sex of all fish in the bucket (by squeezing or stripping).
4. Record numbers of each sex on sampling sheet.
5. Strip all roe from females.
6. Record condition of all roe on sampling sheet.

   Condition 1 - acceptable by fishing companies for the Japanese market (bright yellow translucent eggs, few blood vessels) shown as MATURE 1 in photograph appended to the ROE SAMPLE KIT.

   Condition 2 - may be 2-3 days from acceptability (unclear and pinkish in colour, becoming translucent, too many blood vessels) shown as IMMATURE 2 in photograph appended to the ROE SAMPLE KIT.

   Condition 3 - may be 10 days from acceptability (very opaque with prominent blood vessels) shown as IMMATURE 3 in photograph appended to the ROE SAMPLE KIT.

7. Deposit all Mature 1 roe into volumetric cylinder. Record the percent recovery from the scale on the side of the cylinder. Also record the number of females in conditions 1, 2 and 3, and record the number of males.
8. Repeat the above procedure with a second sample and average the results. If the results of the two samples are very different, a third test may be required.

   Also, record the number of spawned out and juvenile/immature herring.

Appendix Table 4. Instructions for estimating percent roe yield by weight.

1. Obtain a random sample of approximately 75 lb (34 kg) of herring from the set or load.

2. Hang the plastic container on the scale and tare the scale.

3. Fill the container with 22 lb (10 kg) of herring.

4. Strip all roe from the females.

5. Record condition of all the roe on the sampling sheet:

   Condition 1 - acceptable by fishing companies for the Japanese market (bright yellow translucent eggs, few blood vessels) shown as MATURE in photograph appended to ROE SAMPLE KIT.

   Condition 2 - may be 2-3 days from acceptability (unclear and pinkish in colour, becoming translucent, too many blood vessels) shown as IMMATURE 2 in photograph appended to ROE SAMPLE KIT.

   Condition 3 - may be 10 days from acceptability (very opaque with prominent blood vessels) shown as IMMATURE 3 in photograph appended to ROE SAMPLE KIT.

6. Tare the scale and deposit all Mature 1 roe into the weighing container; record the weight. If the #1 roe weight is 870 g, the roe yield is 8.7%; if 950 g, the roe yield is 9.5%, etc.

7. Record the number of females with conditions 1, 2 and 3 maturity and record the number of males.

8. Repeat the above procedure with a second sample and average the results. If the results of the two samples are very different, a third test may be required.

   Also, record the number of spawned out and juvenile/immature herring.

   Important: Check the scale for accuracy periodically using a known weight.

Appendix Table 5. Formula used to adjust roe yields assuming a 50:50 male/female sex ratio.

1. Determine the number of males and females in the roe test sample i.e. 42F, 56M.

2. Determine the % of females in the roe test sample i.e. 42.8% females.

3. Determine the % roe yield i.e. 9%.

   To convert the roe yield to a 50:50 male/female ratio, use the following formula:

$$\frac{\% \text{ roe} \times 50}{\% \text{ females}} \quad \text{i.e.} \quad \frac{9 \times 50}{42.8} = 10.51\%$$

In this example, the roe yield was actually 10.5% assuming a 50:50 male/female sex ratio for the herring stocks in the area.

This information can be passed to the Management Coordinator over the R.T. if requested. The normal procedure is to make reference to the fact that the sample is heavy on males or females. It should be remembered that the sex ratio can be heavy on males especially in the first maturing wave of spawners. Thus, adjusting the roe yield assuming a 50:50 sex ratio can be deceiving.

Appendix Fig. 1a. Wheelhouse and Sample Log - roe yield by volume.

WHEEL HOUSE & SAMPLE LOG

SET INFORMATION

1. Vessel OCEAN MARAUDER Capsain LENIC
3. Area 2wl (INSKIP CHART) Location 5 mile E. Hastings Pt.
5. Date: Day 20 Month 3 Year 83
6. Set No. 36 7. Sample No. 25 8. Time Set 0910
9. Sample: a) is V b) is not _____ representative
10. Est. Tons in school set on 300 11. In catch 200
12. Est. Tons in Location 3500 13. Size Area Do not know
14. a) Wind Direction & Velocity 0 b) sky 100 % clear
c) other _____ d) Sea Surface Temp. 9.5°C
15. Herring School Behaviour Fast moving schools
16. Incidence of other species 3-4 Dogfish
17. Summary of On Board Size Measurements:
a) Cutoff length used 200
b) measured 50
c) No. Fish less than cutoff length 0 %
d) Average Size 22.4

Comments RE: HERRING SIZE

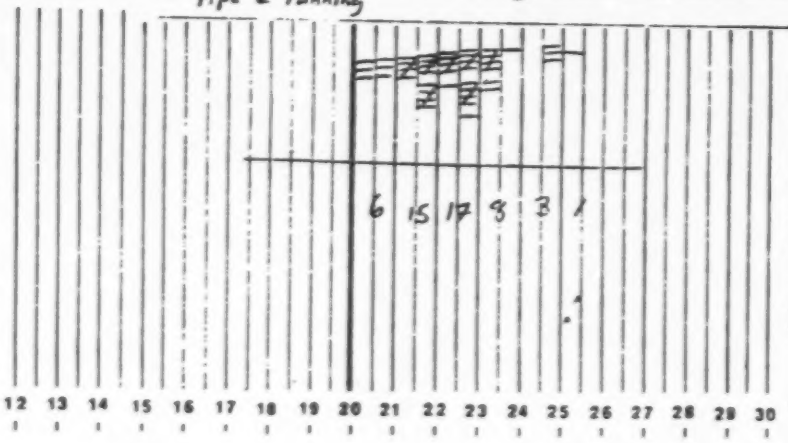
Herring seem to have longer girths than normal - fatter

ROE TEST INFORMATION

	TEST 1	TEST 2	TEST 3	Average
a) No. Females cond. 1 Roe	41	49	37	
b) No. Females cond. 2 Roe	0	3	1	
c) No. Females cond. 3 Roe	2	2	2	
d) TOTAL FEMALES	43	54	40	
e) No. of Males	34	34	47	
f) Roe Yield (VOL)	12.5 %	14.0%	11.0 %	12.5%
g) Roe Yield (WT)	____ %	____ %	____ %	
h) Total sample weight	____ gm./lb.	____ gm./lb.	____ gm./lb.	
i) Total roe weight	____ gm./lb.	____ gm./lb.	____ gm./lb.	

20. Comments RE Maturity i.e. Maturity (gonad running or firm) spawning, bird and Sea Lion activity etc.

Some females were running - the males were also ripe & running



Reporting officer:
Joe Blow

Date Reported:
D M Yr
20 March 83

Time: 1030

Reported to:
C. Crocifix

Appendix Fig. 1b. Wheelhouse and Sample Log - roe yield by weight.

WHEEL HOUSE & SAMPLE LOG

SET INFORMATION

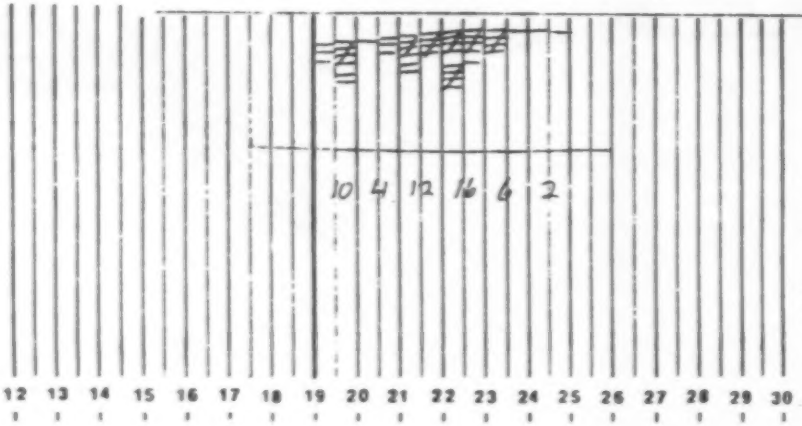
1. Vessel PACIFIC QUEST 2. Captain JOHN POLCHLO
3. Area 14 (ROCKS) 4. Location COMOX HARBOUR
5. Date: Day 27 Month Feb. Year 83
6. Set No. 4 7. Sample No. 4 8. Time Set 0540
9. Sample: a) is V b) is not _____ representative
10. Est. Tons in school set on 300 11. In catch 20
12. Est. Tons in Location 1500 13. Stat Area 3000
14. a) Wind Direction & Velocity SW b) sky 10 % clear
c) other _____ 0ffsea Surface Temp. 6.3°C
15. Herring School Behaviour Tight to bottom
16. Incidence of ther species 3 Dogfish
17. Summary of On Board Size Measurements:
a) Cutoff length used 190
b) measured 50
c) No. Fish less than cutoff length 0 %
d) Average Size 21.7 cm.

Comments RE: HERRING SIZE
Herring are larger than normal

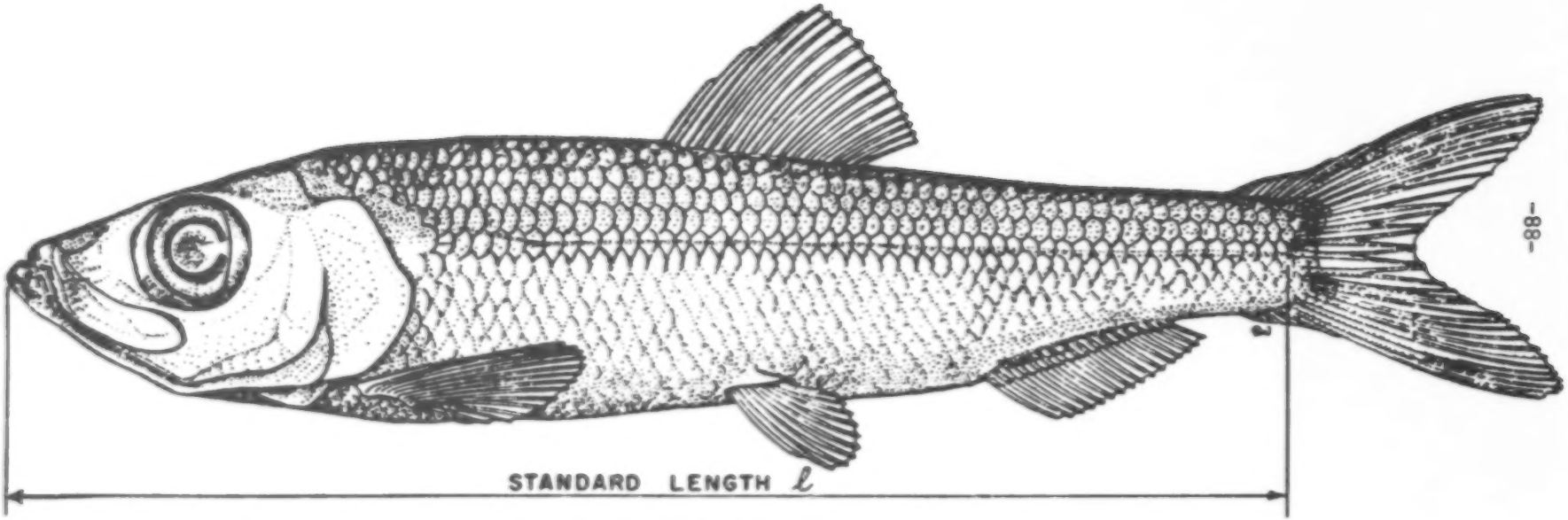
ROE TEST INFORMATION

	TEST 1	TEST 2	TEST 3	
a) No. Females cond. 1 Roe	30	29	31	
b) No. Females cond. 2 Roe	2	3	4	
c) No. Females cond. 3 Roe	5	5	4	
d) TOTAL FEMALES	37	37	39	
e) No. of Males	35	42	34	Average
f) Roe Yield (VOL)	____ %	____ %	____ %	
g) Roe Yield (WT)	9.8 %	9.25 %	10.375 %	9.9 %
h) Total sample weight	10,000 gm./lb.	10,000 gm./lb.	10,000 gm./lb.	
i) Total roe weight	980 gm./lb.	925 gm./lb.	1037.5 gm./lb.	

20. Comments RE: Maturity i.e. Maturity (gonad running or firm) spawning, bird and Sea Lion activity etc.
Many of the females are running = Males also running.



Reporting officer:
Ken Penny
Date Reported:
D M Yr
27 Feb. 83
Time: 0600
Reported to:
Kyle Fraser



Appendix Fig. 2. The standard length measurement ℓ used for measuring herring. This length is defined as the distance from the anterior tip of the fish with the mouth closed, to the end of the silver skin on the caudal peduncle. It is important to scrape the scales off the peduncle area to find the end of the silvery portion of the skin.